รายงานผลการดำเนินโครงการ ครั้งที่ 1

โครงการพัฒนาศักยภาพขององค์กรและสร้างเครือข่ายการประเมินเทคโนโลยีและนโยบายด้านสุขภาพในระดับนานาชาติ ระยะที่หนึ่ง พ.ศ. 2551-2553

A progress report of the project for development of organizational capacity and international HTA networks

(Phase I) BE 2551-2553

เสนอต่อ

Thai Health-Global Link Initiative Project (TGLIP)

โดย

โครงการประเมินเทคโนโลยีและนโยบายด้านสุขภาพ

Health Intervention and Technology Assessment Program (HITAP)

ธันวาคม 2551

สารบัญ

สารบัญตาราง

หน้า

ส่วนที่1: สรุปภาพรวมกิจกรรมและผลงานระหว่างเดือนกันยายน – ธันวาคม พ.ศ. 2551

ในปีที่ผ่านมา ผลงานของโครงการประเมินเทคโนโลยีและนโยบายด้านสุขภาพ (HITAP) ได้ถูกนำไปใช้ในการตัดสินใจเชิงนโยบายเป็นจำนวนมากทำให้ ดร.นพ.ยศ ตีระวัฒนานนท์ หัวหน้าโครงการฯ ได้รับรางวัล the ISPOR International Fellowship Award ประจำ ปี ค.ศ. 2008 ซึ่งมอบให้กับผู้มีผลงานวิจัยด้านเศรษฐศาสตร์สาธารณสุขที่สร้างผลกระทบต่อนโยบายด้านสาธารณสุขในประเทศของตนเอง นอกจากนี้ ผลงานวิจัยของ HITAP ยังได้รับการขอให้เป็นส่วนหนึ่งในหนังสือ Evidence based health economic ที่นักวิชาการด้านเศรษฐศาสตร์สาธารณสุขที่มีชื่อเสียงในระดับโลกหลายท่านกำลังร่างเพื่อตีพิมพ์จำหน่ายทั่วโลกในปี ค.ศ. 2010 จะเห็นได้ว่าผลงานของ HITAP นั้นได้เริ่มขยายออกไปสู่ระดับนานาชาติซึ่งการสนับสนุนจาก TGLIP จะเป็นส่วนสำคัญที่ผลักดันให้การทำงานในระดับนานาชาติของ HITAP มีศักยภาพเพิ่มสูงขึ้น

HITAP ได้รับการสนับสนุนจาก TGLIP เพื่อพัฒนาศักยภาพขององค์กรและสร้างเครือข่ายการประเมินเทคโนโลยีและนโยบายด้านสุขภาพในระดับนานาชาติ ซึ่งประกอบด้วยกิจกรรม 3 กลุ่มหลัก ได้แก่ 1) การจัดการความรู้และเผยแพร่ผลงานวิชาการในระดับนานาชาติ 2) การสร้างเครือข่ายในต่างประเทศ และ 3) การพัฒนาศักยภาพของบุคลากรและองค์กรเพื่อผลักดันประเด็นหรือนโยบายที่เกี่ยวข้องกับการประเมินเทคโนโลยีและนโยบายด้านสุขภาพรวมทั้งการสร้างเสริมสุขภาพ ทั้งนี้ตั้งแต่เดือนกันยายน ถึงธันวาคม พ.ศ.2551 ทาง HITAP ได้ดำเนินกิจกรรมทั้งสามกลุ่ม ดังนี้

ตารางที่ 1 กิจกรรมและผลงานระหว่างเดือนกันยายน- ธันวาคม พ.ศ. 2551

	กิจกรรม	ผลงาน
1) การจัดการความรู้และการเผยแพร่ผลงานวิชาการ	● *การตีพิมพ์งานวิจัยเป็นภาษาอังกฤษ* ● *การเตรียมรายงานผลการวิจัยภาษาอังกฤษ (English manuscripts) สำหรับการเผยแพร่ในระดับนานาชาติ*	1.1 ผลงานวิชาการที่ได้รับการยอมรับตีพิมพ์ในวารสารวิชาการนานาชาติ ● The greatest happiness of the greatest number? Policy actors' perspectives on the limits of economic evaluation as a tool for informing health care coverage decisions in Thailand ในวารสาร BMC Health Service Research (http://www.biomedcentral.com/1472-6963/8/197/abstract) ● A historical development of health technology assessment in Thailand ในวารสาร International Technology Assessment in Health Care (In press) 1.2 รายงานผลการวิจัยภาษาอังกฤษที่อยู่ระหว่างการทบทวนเพื่อตีพิมพ์ในวารสารวิชาการนานาชาติ ● Strengthening cost-effectiveness analysis in Thailand through the establishment of the Health Intervention and Technology Assessment Program อยู่ระหว่างการทบทวนโดยวารสาร Pharmacoeconomics ● Using economic evaluation in policy decision making in Asian countries: mission impossible or mission probable? อยู่ระหว่างการทบทวนโดยวารสาร Value in Health

	กิจกรรม	ผลงาน
		● The Current Capacity and Future Development of Economic Evaluation for Policy Decision Making: A Survey among Researchers and Decision Makers in Thailand อยู่ระหว่างการทบทวนโดยวารสาร Value in Health
2) การสร้างเครือข่ายระดับนานาชาติ	● *การประชาสัมพันธ์ผลงานของ HITAP ในเวทีระหว่างประเทศ*	2.1 การนำเสนอผลงานวิชาการและประชาสัมพันธ์องค์กรในการประชุมวิชาการ 3rd Asia-Pacific ISPOR conference ณ กรุงโซล สาธารณรัฐเกาหลี 2.2 การศึกษาดูงานและสร้างเครือข่ายกับ Health Insurance Review Agency (HIRA) ณ กรุงโซล สาธารณรัฐเกาหลี 2.3 การนำเสนอผลงานวิชาการใน Australasian Professional Society on Alcohol and other Drugs Conference 2008 ณ นครซิดนีย์ ประเทศออสเตรเลีย 2.4 ประสานงานและเตรียมการสำหรับ ● การศึกษาดูงานและสร้างเครือข่ายความร่วมมือกับ National Institute for Health and Clinical Excellence (NICE) ณ กรุงลอนดอน สหราชอาณาจักร ● การสร้างความร่วมมือและเชิญผู้เชี่ยวชาญมาร่วมประเมินโครงการ HITAP และจัดบรรยายวิชาการในเรื่องการบริหารจัดการองค์กรวิจัยเพื่อประเมินเทคโนโลยีด้านสุขภาพ
3) การพัฒนาศักยภาพของบุคลากรและองค์กร	● *การสนับสนุนให้นักวิจัยไปนำเสนอโครงร่างการวิจัยและผลงานในเวทีระดับนานาชาติ* ● *การศึกษาดูงานและแลกเปลี่ยนประสบการณ์กับหน่วยงาน HTA ในต่างประเทศ* ● *การเชิญวิทยากรชาวต่างประเทศมาบรรยายหรือเชิญผู้เชี่ยวชาญมาให้คำปรึกษาเฉพาะโครงการวิจัย*	

ส่วนที่ 2: รายงานกิจกรรมระหว่างเดือนกันยายน-ธันวาคม พ.ศ. 2551

1) การจัดการความรู้และการเผยแพร่ผลงานวิชาการในระดับนานาชาติ

1.1 การตีพิมพ์ผลงานวารสารวิชาการนานาชาติ

ในปี พ.ศ. 2551 ภายใต้การสนับสนุนจาก TGLIP นักวิจัย HITAP ได้ตีพิมพ์งานในวารสารวิชาการนานาชาติ 1 ชิ้น ได้รับการตอบรับและอยู่ระหว่างการตีพิมพ์อีก 1 ชิ้นและอยู่ในกระบวนการทบทวน 3 ชิ้น ทั้งนี้ในการส่งผลงานเพื่อการตีพิมพ์นั้นได้ให้กิตติกรรมประกาศ TGLIP ในฐานะผู้สนับสนุนการเผยแพร่งาน ดังแสดงในภาคผนวกที่ 1

บทความทั้ง 5 ชิ้นมีความสำคัญในการสร้างองค์ความรู้ในเรื่องการนำศาสตร์การประเมินเทคโนโลยีและการประเมินทางเศรษฐศาสตร์มาใช้ในการตัดสินใจเชิงนโยบายในระดับประเทศ พัฒนาการในเชิงประวัติศาสตร์ของการประเมินเทคโนโลยีด้านสุขภาพในประเทศไทยรวมถึงบทบาทของสำนักงานกองทุนสนับสนุนการสร้างเสริมสุขภาพในการสนับสนุนการใช้ข้อมูลเพื่อจัดสรรทรัพยากรในประเทศไทยอย่างมีประสิทธิภาพ การพัฒนาศักยภาพและความพร้อมของการนำการประเมินเทคโนโลยีมาใช้ในกระบวนการตัดสินใจเชิงนโยบาย งานทั้งหมดที่เผยแพร่และจะเผยแพร่นอกจากจะเป็นประโยชน์กับหน่วยงานภาครัฐและเอกชนอื่นๆในประเทศยังเป็นบทเรียนสำคัญให้กับองค์กรในประเทศกำลังพัฒนาและประเทศเพื่อนบ้านในภูมิภาคเอเชียอื่นๆด้วย

รายชื่อบทความทั้ง 5 ชิ้น

1. The greatest happiness of the greatest number? Policy actors' perspectives on the limits of economic evaluation as a tool for informing health care coverage decisions in Thailand

   นำเสนอข้อจำกัดในการใช้การประเมินทางเศรษฐศาสตร์ในการตัดสินใจในการจัดลำดับความสำคัญด้านสุขภาพตามมุมมองของผู้กำหนดนโยบาย นอกจากนั้นยังพบว่าแนวคิดของการเพิ่มอรรถประโยชน์ด้านสุขภาพนั้นมองข้ามคุณค่าทางสังคมๆอื่นซึ่งมีความสำคัญในการประกอบการตัดสินใจจัดการทรัพยากรด้านสุขภาพ

2. A historical development of health technology assessment in Thailand

   ในช่วงสองทศวรรษที่ผ่านมามีการพัฒนาด้านการสร้างศักยภาพของการประเมินเทคโนโลยีด้านสุขภาพควบคู่ไปกับการนำผลการประเมินไปใช้ในประเทศไทยอย่างชัดเจน พัฒนาการดังกล่าว

เกิดขึ้นจากหลายปัจจัยทั้งประสบการณ์ที่เกิดจากการสั่งสมองค์ความรู้ในวงการวิชาการ ผู้เชี่ยวชาญในวงการสุขภาพ และภาคประชาสังคมซึ่งมีส่วนสำคัญทั้งสั่งสมแรงในการขับเคลื่อน รวมถึงพัฒนาระบบการประเมินเทคโนโลยีด้านสุขภาพอย่างเป็นทางการในอนาคต

3. Strengthening cost-effectiveness analysis in Thailand through the establishment of the Health Intervention and Technology Assessment Program

   แนวทางในการดำเนินงานของ HITAP ซึ่งได้เปลี่ยนไปสู่การปฏิบัติในทุกขั้นตอนนั้น ประกอบไปด้วย หลักความเป็นเลิศในเชิงเทคนิคและวิธีวิจัย ความเกี่ยวข้องของงานวิจัยต่อนโยบาย ความโปร่งใส การสื่อสารที่มีประสิทธิภาพ และการมีส่วนร่วมจากผู้มีส่วนได้ส่วนเสีย บทเรียนที่ได้จากการก่อตั้งโครงการประเมินเทคโนโลยีและนโยบายด้านสุขภาพในช่วงสองปีแรก ข้อมูลที่เกี่ยวข้องกับยุทธศาสตร์หลักทั้ง 4 รวมถึงโครงสร้างการบริหารจัดการจะเป็นประโยชน์สำหรับประเทศอื่นๆที่มีข้อจำกัดในด้านทรัพยากรในแนวคิดการสร้างความเข้มแข็งในศักยภาพในการประเมินเทคโนโลยีและมาตรการด้านสุขภาพในเชิงเศรษฐศาสตร์

4. Using economic evaluation in policy decision making in Asian countries: mission impossible or mission probable?

   ส่วนใหญ่ประเทศที่ประสบความสำเร็จในการนำการประเมินทางเศรษฐศาสตร์มาใช้ในการจัดสรรทรัพยากรทางสาธารณสุขนั้นจะมีพัฒนาการที่ยาวนาน ในขณะที่ยังไม่มีการนำการใช้หลักฐานเชิงประจักษ์ดังกล่าวมาใช้ในกลุ่มประเทศกำลังพัฒนาและประเทศในเอเชียอย่างเป็นทางการ จากการศึกษาสามารถสรุปบทเรียนและข้อจำกัดของการนำวิธีการประเมินดังกล่าวมาใช้ได้เป็นสองส่วนได้แก่ปัญหาที่เกิดจากฝั่งผู้ประเมิน และปัญหาที่เกิดจากฝั่งผู้ใช้งานประเมินในเรื่องศักยภาพ ทั้งนี้การนำบทเรียนการประเมินทางเศรษฐศาสตร์ของประเทศพัฒนาแล้วมาเป็นเครื่องมือในการจัดลำดับความสำคัญนั้นมีความจำกัดในหลายส่วนโดยเฉพาะในเรื่องความแตกต่างทางบริบทของแต่ละระบบสุขภาพ ดังนั้น การพัฒนารูปแบบการบริหารจัดการที่ตอบสนองต่อความต้องการและบริบทของพื้นที่นั้นๆจึงมีความสำคัญ เพื่อให้การตัดสินใจจัดสรรทรัพยากรอยู่บนหลักฐานเชิงประจักษ์นั้นมีความเป็นไปได้และประสบความสำเร็จ

5. The Current Capacity and Future Development of Economic Evaluation for Policy Decision Making: A Survey among Researchers and Decision Makers in Thailand

   รายงานผลการสำรวจศักยภาพและความต้องการของผู้บริหารและนักวิจัยในประเทศไทยที่เกี่ยวข้องกับการจัดสรรทรัพยากรด้านสุขภาพ ซึ่งพบว่าประเทศไทยยังมีข้อจำกัดด้านความรู้และความสามารถของผู้บริหารและนักวิจัยในการนำผลการวิจัยไปใช้ตัดสินใจและสร้างความรู้

ใหม่เพื่อประกอบการตัดสินใจเชิงนโยบายโดยเฉพาะอย่างยิ่งความรู้เชิงเศรษฐศาสตร์ที่กลุ่มตัวอย่างทั้งสองให้ความสำคัญ นอกจากนี้ทั้งผู้บริหารและนักวิจัยยังเห็นพ้องว่าประเทศไทยควรเร่งสร้างองค์ความรู้ที่เกี่ยวข้องกับการสร้างเสริมสุขภาพและป้องกันโรคมากกว่าองค์ความรู้เรื่องการรักษาหรือฟื้นฟูสภาพเพราะยังมีความขาดแคลนและจะก่อให้เกิดประโยชน์กับสังคมสูงสุด

2) การสร้างเครือข่ายระดับนานาชาติ และการพัฒนาศักยภาพของบุคลากรและองค์กร

2.1 การนำเสนอผลงานวิชาการและ ประชาสัมพันธ์องค์กรในการประชุมวิชาการ 3rd Asia-Pacific ISPOR conference ณ กรุงโซล สาธารณรัฐเกาหลี

การประชุม International Society for Pharmacoeconomics and Outcome Research-ISPOR นี้ เป็นการประชุมวิชาการที่เกี่ยวข้องกับเศรษฐศาสตร์สาธารณสุขและเภสัชเศรษฐศาสตร์ของภูมิภาคเอเชียแปซิฟิก มีนักวิชาการมากกว่า 24 ประเทศ จำนวนกว่า 800 คนเข้าร่วมประชุม เวทีนี้มีความมุ่งหมายให้เป็นเวทีแลกเปลี่ยนความรู้และประสบการณ์จากนักวิชาการ ผู้ตัดสินใจเชิงนโยบาย ไปจนถึงผู้แทนจากภาคอุตสาหกรรมเพื่อขับเคลื่อนแนวคิดของการใช้หลักฐานชิงประจักษ์ในแง่มุมเศรษฐศาสตร์ประกอบการตัดสินใจเชิงนโยบายในการจัดสรรทรัพยากรด้านสุขภาพ ประเทศไทยได้มีตัวแทนเป็นกรรมการในการจัดงานและมีบทบาสำคัญมากมายในเวทีดังกล่าว ทั้งนี้ในการประชุมที่ผ่านมา HITAP ได้มีบทบาทในการประชุมอย่างโดดเด่น โดยจัดซุ้มประชาสัมพันธ์หน่วยงานและผลงานขององค์กรซึ่งมีจำนวนผู้เข้าชมมากมาย ดังสถิติแสดงในตารางที่ 2

ตารางที่ 2 สถิติผู้เข้าชมซุ้มประชาสัมพันธ์ HITAP

รายละเอียด	จำนวน
ผู้เข้าร่วมงานทั้งหมดประมาณ	800 คน
แผ่นพับแนะนำองค์กรเพื่อแจกผู้สนใจ	430 แผ่น
ผู้เยี่ยมชมซุ้มประชาสัมพันธ์ (2วัน) ประมาณ	350 คน
ผู้กรอกแบบฟอร์มเพื่อขอคู่มือการประเมินเทคโนโลยีด้านสุขภาพของประเทศไทย	61 คน
จำแนกตามหน่วยงาน	
- หน่วยงานภาครัฐ	*31 คน*
- หน่วยงานภาคเอกชน	*22 คน*
- องค์กรพัฒนาเอกชนและมหาวิทยาลัย	*8 คน*

การนำเสนอผลงานวิจัยทั้งแบบปากเปล่าและโปสเตอร์จำนวนมาก และเป็นเจ้าภาพจัดเวทีอภิปรายหมู่ (issue panel session) ในประเด็นการประกาศมาตรการใช้สิทธิตามสิทธิบัตรยา (CL) ภายใต้หัวข้อเรื่อง Gaining access to essential medicines in Thailand through the use of compulsory licensing policy: Pros and cons (good or evil)? เพื่อให้ข้อมูลที่ถูกต้องและแลกเปลี่ยนประสบการณ์ของประเทศไทยในการประกาศนโยบายดังกล่าว โดยมีผู้นำเสนอได้แก่ นพ.สุวิทย์ วิบุลผลประเสริฐ ดร.ภญ.ศรีเพ็ญ ตัน-ติเวสส ดำเนินรายการโดย ผศ.ดร.ภญ. มนทรัตม์ ถาวรเจริญทรัพย์ พบว่าเรื่องดังกล่าวได้รับความสนใจเป็นอย่างมากจากนักวิชาการ ผู้ตัดสินใจเชิงนโยบาย ผู้เชี่ยวชาญ และผู้แทนจากอุตสาหกรรมทั้งในและต่างประเทศ

งานวิจัยจาก HITAP ได้รับการคัดเลือกให้นำเสนอแบบปากเปล่าทั้งสิ้น 7 เรื่อง และได้รับคัดเลือกให้นำเสนอแบบ poster ทั้งสิ้น 17 เรื่อง การนำเสนอแบบปากเปล่าได้รับรางวัล **ISPOR Best Contributed Podium Presentation Awards** 1 เรื่องได้แก่ Cost-utility analysis of recombinant human erythropoietin in cancer patients with anemia induced by chemotherapy in Thailand ผ่านเข้ารอบสุดท้าย 4 เรื่อง และได้รับรางวัล **ISPOR Best Contributed Poster Presentation Awards** 1 เรื่องคือ Economic evaluation on screening strategies and treatment options for postmenopausal osteoporosis (รายละเอียดแสดงในตารางที่ 3)

กรอบที่ 1 รายชื่องานวิจัยที่ได้รับเลือกให้นำเสนอแบบปากเปล่าและโปสเตอร์ การจัด issue panel และ workshop session โดย HITAP

Podium Presentation (7 Presentations)

Chaikledkaew U, Lertpitakpong C, Orrawattanakul Y, Pimsawan N, Kulpeng W, Thavorncharoensap M, Teerawattananon Y, Tangcharoensathien V, SURVEY ON THE CURRENT HUMAN CAPACITY AND FUTURE NEEDS IN ECONOMIC EVALUATION IN THAILAND

Kulpeng W, Natanant S, Thavorncharoensap M, Teerawattananon Y, FACTORS AFFECTING WILLINGNESS-TO-PAY FOR TREATMENT OF BLINDNESS IN THAI POPULATION

Lertpitakpong C, Neramitpitagkul P, Thavorncharoensap M, Chaikledkaew U, Teerawattananon Y, COST OF PRODUCTIVITY LOSS DUE TO PREMATURE MORTALITY ATTRIBUTABLE TO ALCOHOL COMSUMPTION IN THAILAND

Mohara A, Praditsitthikorn N, Kingkaew P, Werayingyong P, Pattanaphesaj J, Yamabhai I, Teerawattananon Y, BUDGET IMPACT ANALYSIS OF COMPULSORY LICENSING POLICY IMPLIMENTATION ON FOUR CANCER DRUGS IN THAILAND

Roungrong J, Teerawattananon Y, Chaikledkaew U, COST-UTILITY ANALYSIS OF RECOMBINANT HUMAN ERYTHROPOIETIN IN CANCER PATIENTS WITH ANEMIA INDUCED BY CHEMOTHERAPY IN THAILAND **(ได้รับรางวัล ISPOR Best Contributed Podium Presentation Award)**

Tamteeranon Y, Chaikledkaew U, Khonputsa P, Teerawattananon Y, A SYSTEMATIC REVIEW AND META-ANALYSIS OF THE EFFICACY OF STATINS ON REDUCING ACUTE CORONARY SYNDROME AND STROKE EVENTS

Yothasamut J, Thavorncharoensap M, Teerawattananon Y, Lertpitakpong C, Thitiboonsuwan K, ECONOMIC COSTS OF ALCOHOL ABUSE IN THAILAND: COST OF LAW ENFORCEMENT AND CRIMINAL JUSTICE

Poster presentation (17 Posters)

Bunyadharokul S, Riewpaiboon A, Chaikledkaew U3 Torcharus K, BUDGET IMPACT OF THE THALASSEMIA MANAGEMENT UNDER THE NATIONAL HEALTH SECURITY SCHEME

Khonputsa P, Tamteeranon Y, Veerman L, Vos T, Lim S, Chaikledkaew U, Teerawattananon Y, ASSESSING COST-EFFECTIVENESS OF STATINS FOR THE PRIMARY PREVENTION OF CARDIOVASCULAR DISEASE IN THAILAND

Kingkaew P, Maleewong U, Ngarmukos C, Teerawattananon Y**,** ECONOMIC EVALUATION ON SCREENING STRATEGIES AND TREATMENT OPTIONS FOR POSTMENOPAUSAL OSTEOPOROSIS **(ได้รับรางวัล ISPOR Best Contributed Poster Presentation Awards)**

Kingkaew P, Werayingyong P, Youngkong S, Riewpaiboon W, Kanchanalarp C, Tungkeeratichai J, Potaporn M, Teerawattananon Y**,** ANALYSIS OF COST-UTILITY AND BUDGET IMPACT ON COCHLEAR IMPLANTATION FOR PROFOUNDLY BILATERAL HEARING LOSS PATIENTS IN THAILAND: A SIMULATION STUDY

Natanant S, Kulpeng W, Thavorncharoensap M, Teerawattananon Y**,** COMPARISON OF TWO UTILITY MEASUREMENT TECHNIQUES: TIME TRADED OFF AND VISUAL ANALOGUE SCALE **(เข้ารอบสุดท้าย ISPOR Best Contributed Poster Presentation Awards)**

Neramitpitagkul P, Lertpitakpong C, Yothasamut J, Thavorncharoensap M, Chaikledkaew U, Teerawattananon Y ECONOMIC IMPACT ON HEALTH CARE COST DUE TO ALCOHOL DRINKING AMONG THAI POPULATION

Pattanaphesaj J, Riewpaiboon A, Riewpaiboon W, Muenpol P, Paileeklee S, Tungjaroen D, Krutjaikla B**,** COST RECOVERY OF MEDICAL REHABILITATION SERVICES UNDER THE UNIVERSAL HEALTH COVERAGE SCHEME AT UDONTHANI HOSPITAL

Praditsitthikorn N, Riewpaiboon A, Teerawattananon Y, ECONOMIC EVALUATION OF CERVICAL CANCER PREVENTIONS AND CONTROL PROGRAMS IN THAILAND

Praditsitthikorn N, Riewpaiboon A, Chichareon S, Teerawattananon Y, THE LIFETIME TREATMENT COST OF INVASIVE CERVICAL CANCER IN THAILAND

Putchong C, Udomsook K, Sumpradit N, Khanabkaew K, Teerawattananon Y**,** EFFECT OF DISEASE AWARENESS COMMUNICATION OF HUMAN PAPILLOMAVIRUS (HPV) VACCINE ON PUBLIC PERCEPTIONS AND VACCINATION DECISION

Teerawattananon K**,** ECONOMIC EVALUATION OF TREATMENT ADMINISTRATION STRATEGIES OF GANCICLOVIR FOR CYTOMEGALOVIRUS RETINITIS IN HIV/AIDS PATIENTS IN THAILAND

Thavorncharoensap M, Natanant S, Kulpeng W, Teerawattananon Y**,** ESTIMATING A SOCIETAL VALE FOR A CEILING THRESHOLD IN THAILAND: A CASE STUDY OF MEASURING WILLINGESS-TO-PAY PER QUALITY- ADJUSTED LIFE YEAR **(เข้ารอบสุดท้าย ISPOR Best Contributed Poster Presentation Awards)**

Thitiboonsuwan K, Lertpitakpong C, Yothasamut J, Thavorncharoensap M, Teerawattananon Y, Chaikledkaew U**,** ECONOMIC COSTS OF ALCOHOL-RELATED ABSENTEEISM AND PRESENTEEISM IN THAILAND

Turongkaravee S, Chaikledkaew U, Chansirikarnjana S, Pongchareonsuk P, Krairit O**,** THE COST OF HOME-BASED CARE FOR THAI ELDERLY WITH DEMENTIA IN A THAI UNIVERSITY HOSPITAL

Werayingyong P, Pongcharoensuk P, Kamolsilp M**,** HEALTH RESOURCE UTILIZATION OF OSTEOPOROSIS PATIENTS AT PHRAMONGKUTKLAO HOSPITAL **(เข้ารอบสุดท้าย ISPOR Best Contributed Poster Presentation Awards)**

Yamabhai I, Praditsitthikorn N, Teerawattananon Y, ASSESSING THE APPROPRIATNESS AND FEASIBILITY OF USING PET-CT SCAN IN THAILAND

Yothasamut J, Youngkong S, Teerawattananon Y, Tantivess S, Thavorncharoensap M, Chaikledkaew U, Lertpitakpong C, Mohara A, Kingkaew P, Yamabhai I, REVIEW OF ALCOHOL POLICIES AND CONTRIBUTIONS FROM KEY PLAYERS IN REDUCING ALCOHOL CONSUMPTION BETWEEN 1997-2007 IN THAILAND

Issue Panel

HEALTH POLICY ISSUES

IP1: GAINING ACCESS TO THE ESSENTIAL MEDICINES IN THAILAND THROUGH THE USE OF COMPULSORY LICENSING POLICY: PROS AND CONS (GOOD OR EVIL)?

Moderator: Viroj Tangcharoensathien MD, PhD, Director of International Health Policy Program, Bureau of Policy and Strategy, Nonthaburi, Thailand

Panelists: Suwit Wibulpolprasert MD, MPH, Senior Advisor on Disease Control, Office of the Permanent Secretary, Ministry of Public Health, Nonthaburi, Thailand; Sripen Tantivess PhD, Researcher, Health Intervention and Technology Assessment Program (HITAP), Nonthaburi, Thailand; TBD, Representative from industry and Pharmaceutical Research and Manufacturer Association (Prema), Bangkok, Thailand

Workshop session II

HEALTH CARE POLICY DEVELOPMENT USING OUTCOMES RESEARCH

W7: PHARMACOECONOMIC GUIDELINES IN CHINA AND THAILAND (Speakers at this workshop were invited)

Application of Pharmacoeconomics & Outcomes Research in China

Discussion Leader: Ming Tang PhD, Principal Director, Center of Pharmacoeconomic Evaluation, Chinese Medical Doctor Association, Beijing, China

Development of the National Guidelines for Conducting Pharmacoeconomic Evaluation in Thailand

Discussion Leader: Yot Teerawattananon PhD, Health Intervention and Technology Assessment Program, Ministry of Public Health, Thailand.

นอกจากนี้ทางทีมนักวิจัยโครงการ**ศึกษาผลกระทบการบังคับใช้สิทธิตามสิทธิบัตรยาของประเทศไทย** ยังได้รับเชิญจากนักวิชาการในมหาวิทยาลัยและนักพัฒนาในองค์กรเอกชนที่ไม่แสวงหากำไร ให้นำเสนอผลการวิจัยเบื้องต้น ณ Institute for Health and Social Affairs ซึ่งเป็นเวทีที่จัดนอกรอบการประชุม ISPOR นอกจากจะเป็นการช่วยเหลือทางวิชาการกับนักวิชาการและนักพัฒนาจากสาธารณรัฐเกาหลี ยังเป็นการสร้างภาพลักษณ์และเครือข่ายในอนาคตให้กับ HITAP และผู้สนับสนุนอีกด้วย

สรุปประโยชน์ที่ได้จากการเข้าร่วมประชุม 3rd Asia-Pacific ISPOR conference

(1) HITAP ได้เผยแพร่ผลงาน ประสบการณ์ และนโยบายของระบบสุขภาพไทยในเวทีนานาชาติที่เกี่ยวข้องกับการใช้หลักฐานเชิงประจักษ์สำหรับการตัดสินใจเชิงนโยบาย เช่น ข้อมูลผลกระทบของการบังคับใช้สิทธิตามสิทธิบัตรยาในกรณียาต้านไวรัสเอชไอวี ยาหัวใจและยารักษามะเร็ง หรือผลการประเมินผลกระทบทางเศรษฐกิจของการบริโภคเครื่องดื่มแอลกอฮอล์ในประเทศไทย ซึ่งสนับสนุนโดยสำนักงานกองทุนสนับสนุนการสร้างเสริมสุขภาพและศูนย์วิจัยปัญหาสุรา ซึ่งเป็นงานวิจัยที่สร้างองค์ความรู้ที่เกี่ยวข้องกับการบริโภคเครื่องดื่มแอลกอฮอล์และใช้ในการผลักดันร่างพระราชบัญญัติสุราในปี พ.ศ.2551

(2) สร้างเครือข่ายในระดับนานาชาติ ทั้งนี้นักวิจัย HITAP ได้พบปะ ทำความรู้จักและแลกเปลี่ยนกับนักวิชาการและผู้แทนจากหลายหน่วยงาน เช่น National Institute for Health and Clinical Excellence (NICE) สหราชอาณาจักร, Center for Drug Evaluation ประเทศไต้หวัน และ Health Insurance Review and Assessment สาธารณรัฐเกาหลี เป็นต้น ทำให้มีเครือข่ายของนักวิชาการในต่างประเทศเพิ่มขึ้น

(3) ประชาสัมพันธ์องค์กรและผู้สนับสนุนให้เป็นที่รู้จักในเวทีนานาชาติ ทั้งนี้ในระหว่างการประชุมได้มีการจัดซุ้มประชาสัมพันธ์หน่วยงาน HITAP และผู้สนับสนุน พบว่ามีผู้สนใจมากจากหลายภาคส่วนเข้าร่วมชมซุ้มประชาสัมพันธ์ นอกจากนี้นักวิจัยของ HITAP ยังได้สร้างชื่อเสียงให้กับประเทศและหน่วยงานรวมถึงองค์กรที่สนับสนุน ด้วยการชนะเลิศรางวัลการนำเสนอผลงานวิจัยแบบปากเปล่าและการนำเสนอผลงานวิจัยด้วยโปสเตอร์

(4) นักวิจัยจาก HITAP ยังได้รับความรู้จากการเข้าร่วมฟังบรรยาย นำเสนองานทั้งแบบปากเปล่าและโปสเตอร์จากนักวิจัยของหน่วยงานอื่น อันเป็นการเสริมสร้างศักยภาพและองค์ความรู้ที่เกี่ยวข้องกับการประเมินเทคโนโลยีและนโยบายด้านสุขภาพที่เป็นประโยชน์ยิ่ง

2.2 การศึกษาดูงานและสร้างเครือข่ายกับ Health Insurance Review Agency (HIRA) ณ กรุงโซล สาธารณรัฐเกาหลี

การศึกษาดูงานที่หน่วยงาน Health Insurance Review Agency (HIRA) ของสาธารณรัฐเกาหลี ซึ่งเป็นองค์กรอิสระของรัฐบาลที่มีหน้าที่ตรวจสอบการเบิกจ่ายค่ารักษาพยาบาลในระบบประกันสังคมของเกาหลีใต้ ประเมินความคุ้มค่าของมาตรการด้านสุขภาพเพื่อบรรจุในชุดสิทธิประโยชน์ พัฒนาวิธีการทบทวนและประเมินคุณภาพการรักษาพยาบาล และสนับสนุนการสร้างเครือข่ายผ่านการแลกเปลี่ยนข้อมูลด้านสุขภาพและสร้างความร่วมมือระหว่างประเทศ โดย HIRA จะทำงานเป็นตัวเชื่อมระหว่างรัฐบาล สำนักงานหลักประกันสุขภาพแห่งชาติ(National Health Insurance Corporation-NHIC) และสถานพยาบาลต่างๆ การศึกษาดูงานครั้งนี้เป็นงานต่อเนื่องจากการเข้าประชุม ISPOR ทั้งนี้มีวัตถุประสงค์เพื่อศึกษาดูงาน แลกเปลี่ยนประสบการณ์ และความเป็นไปได้ในการสร้างความร่วมมือระหว่างสองสถาบันอย่างเป็นทางการในอนาคต

จากการศึกษาดูงานที่ HIRA คณะดูงานได้รับประโยชน์ดังนี้

(1) ได้เรียนรู้ประสบการณ์การทำงานของ HIRA และแลกเปลี่ยนประเด็นต่างๆดังนี้

จุดเด่น ที่ทำให้ HIRA ประสบความสำเร็จคือ การมีอำนาจตามกฎหมายในการปฏิบัติงาน ทำให้ผู้ที่เกี่ยวข้องต้องให้ความร่วมมือ นอกจากนั้นยังใช้เทคโนโลยีสารสนเทศเข้ามาช่วยอย่างมาก ทางทีมงาน HITAP ได้มีโอกาสเข้าไปเยี่ยมชมศูนย์อำนวยการสารสนเทศซึ่งเป็นศูนย์กลางของข้อมูลสุขภาพของทั้งประเทศและมีระบบรักษาความปลอดภัยอย่างดีเยี่ยม นอกจากนั้นประชาชนยังให้ความเชื่อมั่นและยอมรับในระบบราชการของประเทศ ทั้งนี้ส่วนหนึ่งเป็นเพราะการสื่อสารระหว่างหน่วยงานรัฐกับประชาชนเป็นไปอย่างมีประสิทธิภาพ สำหรับประเด็นความเหมือนและต่างระหว่าง HIRA กับ HITAP นั้นพบว่าส่วนที่เหมือนกันคือทั้งสองหน่วยงานสนับสนุนการใช้ข้อมูลสำหรับการตัดสินใจเชิงนโยบาย แต่แตกต่างกันตรงที่ HIRA มีขอบเขตงานที่กว้างขวางกว่าการประเมินเทคโนโลยี และ HIRA ตัดสินใจในเรื่องที่เกี่ยวข้องกับเทคโนโลยีทางการแพทย์เฉพาะยา วัคซีน และเครื่องมือแพทย์ ขณะที่ HITAP มีความสนใจที่ครอบคลุมกว้างขวางกว่า โดย HITAP สนใจในเรื่องนโยบาย การส่งเสริมสุขภาพ ป้องกันโรคทั้งระดับบุคคลและสังคมซึ่งรวมถึงนโยบายด้านกฎหมาย การค้าและการลงทุนที่อาจมีผลกระทบต่อสุขภาพ สำหรับประเด็นการบริหารจัดการองค์กรของ HIRA ที่สามารถนำมาปรับใช้กับองค์กร HTA ในประเทศไทย พบว่า HIRA ให้ความสำคัญมากกับการจัดเก็บ และวิเคราะห์ข้อมูลการใช้และให้บริการด้านสุขภาพในระดับประเทศเป็นอย่างมาก มีการ

สร้างระบบจัดเก็บที่มีความละเอียด แม่นยำ ทำให้ได้ข้อมูลที่มีคุณภาพมีความทันสมัยซึ่งหากประเทศไทยพัฒนาการจัดเก็บข้อมูลได้ในระดับเดียวกันเชื่อว่าจะมีประโยชน์กับงานวิจัยด้านนโยบายและระบบสุขภาพ ซึ่งย่อมส่งเสริมให้การตัดสินใจในระดับนโยบายอยู่บนพื้นฐานของข้อเท็จจริงมากที่สุด

(2) เจรจาเพื่อหาช่องทางสร้างความร่วมมือระหว่างหน่วยงาน

นอกเหนือจากการเรียนรู้และแลกเปลี่ยนประสบการณ์ของทั้งสองฝ่ายแล้ว ยังได้มีการพูดคุยถึงความร่วมมือในอนาคตในระดับผู้บริหารระดับสูงว่า มีความเป็นไปได้ที่จะมีการแลกเปลี่ยนนักวิจัยของทั้งสองหน่วยงานเพื่อเรียนรู้การทำงาน นอกจากนั้นยังได้กล่าวถึงความเป็นไปได้ในการสร้างความร่วมมือด้านวิชาการ เนื่องจาก HIRA ยังไม่มีประสบการณ์ในการประเมินเทคโนโลยีดังนั้นเจ้าหน้าที่ของ HIRA มีความสนใจที่จะมีโครงการความร่วมมือระว่างทั้งสองหน่วยงาน โดยเฉพาะอย่างยิ่งต้องการให้ HITAP ช่วยเหลือในการจัดอบรมการประเมินความคุ้มค่าทางการแพทย์ ซึ่ง HITAP ดำเนินงานมาเป็นเวลาหลายปีและได้รับการยอมรับในวงกว้าง นอกจากนั้นในบางกรณีการประเมินเทคโนโลยีในประเทศเกาหลีและประเทศไทยอาจมีลักษณะประเด็นคำถามและบริบทที่ไม่แตกต่างกัน การสร้างครือข่ายและการทำวิจัยร่วมกันอาจทำให้ลดความซ้ำซ้อนและภาระงานของหน่วยงานทั้งสองได้

2.3 การประชุม Australasian Professional Society on Alcohol and other Drugs Conference 2008: Evidence, Policy and Practice

การประชุม Australasian Professional Society on Alcohol and other Drugs Conference 2008: Evidence, Policy and Practice ระหว่างวันที่ 22-26 พฤศจิกายน 2551 Sydney Convention & Exhibition Centre, ซิดนีย์ ออสเตรเลีย วัตถุประสงค์ของการประชุมเพื่อสนับสนุนการปรับปรุงการรักษาและป้องกันปัญหาจากยาเสพติดและแอลกอฮอล์บนหลักฐานเชิงประจักษ์ การประชุมนี้มีผู้เข้าร่วมประมาณ 1,000 คน ประกอบไปด้วย บุคลากรทางการแพทย์ นักสังคมสงเคราะห์ ตำรวจ นักวิจัย นักวิชาการ ผู้กำหนดนโยบาย และนักการศึกษา เป็นต้น

นักวิจัยจาก HITAP ได้นำเสนอผลงานวิจัยแบบปากเปล่าเรื่อง Assessing enforcement of policy on limiting alcohol accessibility and alcohol purchasing หรือ การประเมินผลการบังคับใช้มาตรการจำกัดการเข้าถึงและการหาซื้อเครื่องดื่มแอลกอฮอล์ ใน alcohol policy session ทั้งนี้นักวิจัยที่เข้าร่วมประชุมได้รับข้อคิดเห็นที่เป็นประโยชน์ต่อการปรับปรุงงานวิจัย และทราบถึงแนวโน้มของงานวิจัยด้านแอลกอฮอล์ในอนาคต

ส่วนที่ 3: แผนการดำเนินงานปี พ.ศ. 2552

1. การเตรียมการศึกษาดูงานที่ National Institute for Health and Clinical Excellences (NICE) ซึ่งเป็นหน่วยงานที่ทำหน้าที่ประเมินเทคโนโลยีด้านสุขภาพของประเทศอังกฤษและเวลส์ที่มีชื่อเสียงเป็นที่ยอมรับของนานาประเทศ และพบปะแลกเปลี่ยนและสนทนาความเป็นไปได้ในการสร้างความร่วมมือทางวิชาการกับ London School of Hygiene and Tropical Medicine (LSHTM) ณ กรุงลอนดอน และ Centre for Health Economics (CHE) ณ เมือง York ซึ่งสถาบันการศึกษาทั้งสองมีนักวิจัยระบบสุขภาพรวมถึงการวิจัยที่เกี่ยวข้องกับการสร้างเสริมสุขภาพระดับโลก

   ในช่วงที่ผ่านมา HITAP ได้ติดต่อประสานงานกับเจ้าหน้าที่ของ NICE LSHTM และ CHE เพื่อวางแผนและกำหนดประเด็นการดูงานและเจรจา รวมทั้งกำหนดวันเดินทางในเดือน มกราคม พ.ศ.2552 กำหนดการ วาระการประชุม และรายชื่อผู้เข้าร่วมการประชุมแสดงในภาคผนวกที่ 5

2. แปลผลงานวิจัยและรายงานประจำปีของโครงการเป็นภาษาอังกฤษเพื่อเผยแพร่ในระดับนานาชาติ เนื่องจากงานวิจัยหลายเรื่องที่ดำเนินการโดย HITAP และต้องการผลักดันนโยบายในประเทศ เช่น นโยบายการควบคุมแอลกอฮอล์ การบังคับใช้สิทธิตามสิทธิบัตรยา จะประสบความสำเร็จได้ง่ายขึ้นหากได้รับการสนับสนุนหรือมีแรงกดดันจากภายนอกประเทศ ดังนั้นในแผนการดำเนินงานปี พ.ศ. 2552 HITAP ภายใต้การสนับสนุนจาก TGLIP จะดำเนินการจัดแปลเอกสารรายงานผลการวิจัยและรายงานความก้าวหน้าประจำปีเป็นภาษาอังกฤษ เพื่อเผยแพร่และหาแนวร่วมสนับสนุนการดำเนินนโยบายที่สำคัญในประเทศ โดยแต่ละรายงานจะมีกลุ่มเป้าหมายที่ชัดเจนและตรงกับวัตถุประสงค์ของการเผยแพร่ประชาสัมพันธ์

   นอกเหนือจากรายงานผลการวิจัยและรายงานประจำปีของโครงการ การแปลเว็บไซต์เป็นภาษาอังกฤษก็เป็นอีกหนึ่งช่องทางในการเผยแพร่ผลงานและหาแนวร่วมในเชิงนโยบายในระดับนานาชาติ เว็บไซต์ภาษาอังกฤษยังใช้เป็นช่องทางในการประสานความร่วมมือกับเครือข่ายนานาชาติที่จัดตั้งขึ้นภายใต้โครงการ TGLIP เพื่อรายงานข้อมูลข่าวสารและกิจกรรมความคืบหน้าของเครือข่าย

3. การเชิญผู้เชี่ยวชาญด้านการประเมินเทคโนโลยีและนโยบายด้านสุขภาพระดับโลกเพื่อประชุมและบรรยายวิชาการในประเทศไทย

ตามแผนการดำเนินงานในเดือน มีนาคม พ.ศ.2552 HITAP จะเชิญผู้เชี่ยวชาญจากต่างประเทศเข้าร่วมประชุมและบรรยายวิชาการที่เกี่ยวข้องกับการประเมินเทคโนโลยีและนโยบายด้านสุขภาพในประเทศไทย โดยมีวัตถุประสงค์เพื่อให้ข้อแนะนำในการดำเนินงานของโครงการและให้ความรู้แก่ผู้สนใจทั่วไป หัวข้อในการบรรยายและกำหนดการที่แน่นอนจะได้รับการยืนยันในการไปศึกษาดูงานที่ประเทศอังกฤษของเจ้าหน้าที่ HITAP ในเดือนมกราคมนี้

ภาคผนวก

ภาคผนวกที่ 1: บทความที่ตีพิมพ์ในวารสารวิชาการและอยู่ระหว่างการทบทวน 5 บทความ

1. The greatest happiness of the greatest number? Policy actors' perspectives on the limits of economic evaluation as a tool for informing health care coverage decisions in Thailand ในวารสาร BMC Health Service Research (http://www.biomedcentral.com/1472-6963/8/197/abstract)
2. A historical development of health technology assessment in Thailand ในวารสาร International Technology Assessment in Health Care (In press)
3. Strengthening cost-effectiveness analysis in Thailand through the establishment of the Health Intervention and Technology Assessment Program อยู่ระหว่างการทบทวนโดยวารสาร Pharmacoeconomics
4. Using economic evaluation in policy decision making in Asian countries: mission impossible or mission probable? อยู่ระหว่างการทบทวนโดยวารสาร Value in Health
5. The Current Capacity and Future Development of Economic Evaluation for Policy Decision Making: A Survey among Researchers and Decision Makers in Thailand อยู่ระหว่างการทบทวนโดยวารสาร Value in Health

BMC Health Services Research

Research article

The greatest happiness of the greatest number? Policy actors' perspectives on the limits of economic evaluation as a tool for informing health care coverage decisions in Thailand

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Published: 26 September 2008

BMC Health Services Research 2008, **8**:197 doi:10.1186/1472-6963-8-197

Received: 21 January 2008
Accepted: 26 September 2008

This article is available from: http://www.biomedcentral.com/1472-6963/8/197

Abstract

Background: This paper presents qualitative findings from an assessment of the acceptability of using economic evaluation among policy actors in Thailand. Using cost-utility data from two economic analyses a hypothetical case scenario was created in which policy actors had to choose between two competing interventions to include in a public health benefit package. The two competing interventions, laparoscopic cholecystectomy (LC) for gallbladder disease versus renal dialysis for chronic renal disease, were selected because they highlighted conflicting criteria influencing the allocation of healthcare resources.

Methods: Semi-structured interviews were conducted with 36 policy actors who play a major role in resource allocation decisions within the Thai healthcare system. These included 14 policy makers at the national level, five hospital directors, ten health professionals and seven academics.

Results: Twenty six out of 36 (72%) respondents were not convinced by the presentation of economic evaluation findings and chose not to support the inclusion of a proven cost-effective intervention (LC) in the benefit package due to ethical, institutional and political considerations. There were only six respondents, including three policy makers at national level, one hospital director, one health professional and one academic, (6/36, 17%) whose decisions were influenced by economic evaluation evidence.

Conclusion: This paper illustrates limitations of using economic evaluation information in decision making priorities of health care, perceived by different policy actors. It demonstrates that the concept of maximising health utility fails to recognise other important societal values in making health resource allocation decisions.

Background

In all societies health care resources are restricted so that priority setting for health expenditure has to be done either implicitly or explicitly[1]. Health economic evaluation is a method used to analyse the costs and benefits of different health care interventions, and has often been quoted as the most promising tool to assist decision-makers in health care rationing[2,3]. Cost-utility analysis, which is one type of health economic evaluation, is widely recommended in many official health technology

assessment guidelines in many settings [4-7]. The method assumes that the ultimate goal of the health care system is to maximise health benefits from the finite resources available, regardless of the distribution of these health benefits. To allow comparisons across a broad spectrum of intervention or programme areas, a common health benefit composite indicator, such as the Quality Adjusted Life Year (QALY), has been created and applied to numerous interventions to enable decision makers to decide which health investments maximise health (QALYs)[8,9]. A QALY measures both the quantity of life generated by an intervention (in years) and the change to quality of life in each of those years.

Although there are several moral and methodological controversies over the use of economic evaluation to guide health resource allocation[3,10,11], it is increasingly being used in some industrial countries on the grounds that it can inform more explicit and transparent health care coverage decisions[12]. In low- and middle-income countries the tool has rarely been used to inform decisions about the content of health care benefit packages. However in middle income countries such as Thailand policy-makers are facing growing pressure to justify resource allocation decisions in the health sector, due to increasing resource constraints arising from an epidemiological transition and increases in the availability and cost of new health technologies [13-15]. In Thailand the Universal Health Insurance Coverage (UC) policy implemented in 2001 offers a package of health care interventions at public facilities to all Thai citizens not covered by other benefit packages[16]. There is growing pressure on the government to clarify and make more transparent the UC benefit package, particularly for high cost interventions that absorb a disproportionate amount of resources[17]. Some high cost interventions are included in the package, others are excluded and some are in a 'grey zone' and provided at the discretion of consultants or hospital directors. A mix of criteria, mainly implicit, have influenced these decisions, for example pre-existing service availability, affordability for the provider and political pressures[18].

This paper presents qualitative findings based on semi-structured face-to-face interviews that explored the acceptability of using only evidence from economic evaluation among different policy actors. A case scenario was constructed using information from two separate economic evaluation studies previously conducted in Thailand. One was an economic evaluation of open versus laparoscopic cholecystectomy for gallbladder stone disease[19] and the other was an economic evaluation of renal dialysis compared to palliative treatment of end-stage renal disease[20]. The interviews sought to explore policy actors' justifications for their decisions on the case scenarios, including the trade-offs they had to make between cost utility criteria founded on the principle of health (QALY) maximisation, and other criteria such as disease severity and overall budget impact[21,22].

Methods

Respondents

The selection of respondents was purposive to cover four groups of policy actors who play a major role or influence in health resource allocation decisions within the Thai healthcare system. A purposive sampling strategy was used to ensure that a range of policy actors was covered and that, at the highest level, the most important policy actors were selected. The qualitative data generated is not intended to be 'representative' in statistical terms, but the data can be used to build understanding of policy actors' attitudes and positions relating to economic evaluation in decision-making. Depth of understanding rather than sample size was the main concern[23,24]. However the policy relevance of the findings did rely on ensuring that an appropriate range of policy actors for this particular setting were covered, to enable the capture of a 'typical' range of perspectives[25].

As a result, an invitation letter, research proposal and consent form were sent to each of 38 potential participants including:

• fourteen **policy makers at the national level** who were the most senior administrators at the Ministry of Public Health (MOPH) and National Health Security Office (NHSO), which is an autonomous health care institution in Thailand that manages the Universal Health Coverage scheme;

• five **hospital directors** who are responsible for allocating resources within Thai healthcare institutions;

• twelve **health professionals** (medical specialists) who are responsible for resource allocation decisions at the patient-level, and;

• seven **academics** who produce and/or use economic evaluation information to inform decision makers.

For policy makers at national level letters were sent to the top seven senior administrators at the MOPH, both politicians and bureaucrats, and the top seven senior administrators of the NHSO. For the hospital directors, the five directors of the public hospitals where the authors had previously conducted the aforementioned economic evaluation studies[19,20] were invited for interview. The invitation letters were also purposively sent to health professionals at those five public hospitals. It was an intention to cover a wide range of medical specialists

including two internists, two surgeons, two nephrologists, two paediatricians, one oncologist, one ophthalmologist, one orthopaedist and one otorhinolaryngologist. Finally, seven Thai academics whose names were identified from national and international publications on issues of 'health care rationing/prioritisation' were invited to participate in the study.

Thirty-six respondents agreed to participate and were interviewed between December 2004 and May 2005 (missing two health professionals, paediatrician and orthopaedist). They were predominantly male (only two were female physicians), had an average age of 50 years and 34 out of 36 (94%) had a medical background (only two academics not qualified in medicines), which reflects the composition of senior management in the health sector in Thailand more generally. Only two policy makers and four academics had formal training in health economics or health care financing.

Interview schedule

At the beginning of the interview every respondent was given a brief introduction to health economic evaluation, including the concepts and applications of QALY maximisation. The semi-structured interview schedule then had two related parts. The first was a set of questions to explore policy actors' opinions about existing criteria for including health interventions in the UC benefit package, and their acceptance and values relating to the use of economic evaluation for development of the benefit package. The findings from these general questions are presented elsewhere[26].

The second part of the interview consisted of a hypothetical decision-making case scenario in which respondents were presented with a choice of two interventions and asked to decide which one to include in the UC package, based on different types of evidence, including the economic evaluation data collected as part of the wider research project. They were given a scenario in which the government was considering inclusion of one of two treatments, (1) laparoscopic cholecystectomy (LC) for gallbladder disease, versus (2) dialysis for chronic renal disease. The data presented to the respondents came from the results of economic evaluation studies conducted by the first author[19,20].

The selection of the two interventions for the case scenario was based on several important factors. Firstly, it was important to make the hypothetical scenario as realistic as possible, and both these treatments were the subject of real public debate at the time of the study. There was and continues to be pressure from various interest groups to include dialysis for chronic renal disease and laparoscopic surgery in the UC benefit package[27]. Neither LC nor dialysis were covered by the UC at the time of the interview, although conventional open cholecystectomy (OC) for gallbladder disease and palliative management for chronic renal disease were included. LC and dialysis were both being offered by other public health insurance schemes at the time.

Secondly, the two interventions were selected because they have several features, identified from the literature, which were likely to highlight conflicting priorities towards the allocation of health care resources (see Table 1), and so stimulate discussion about the application of economic evaluation in real world decision-making, for example whether life saving interventions should be prioritised over cost effective interventions, and how to deal with questions of equitable resource allocation or protection against catastrophic health care payments[28].

In order to assess the relative importance given by respondents to a particular type of information or evidence (disease severity and treatment alternatives, cost effectiveness, budget impacts) the information was deliberately not presented at once but arranged into three staged components. Each piece of information was revealed separately and between each presentation the respondent was asked to choose the intervention that they would support to be included in the UC package. In addition, the interviewer did not inform respondents that there would be more information available after presenting the first and then the second piece of information.

The first piece of information described the two treatments and the expected recovery rates or quality of life resulting from the treatment [see additional file 1]. The second piece of information described the cost utility ratios of the two interventions, to see if this information changed the respondent's decision to choose between LC for gallbladder disease or dialysis for chronic renal disease [see additional file 2]. Finally, the overall financial impacts for the government and patients were presented [see additional file 3]. It was expected that the financial implications for both public and private sectors would have a greater influence on the respondent's decision than economic evaluation information, so these financial implications were presented last.

After each piece of information was presented, a structured question was asked to elicit a specific decision-making response. To encourage a response to the case scenario the interviewer stressed that there were no right or wrong answers. Although the respondents could refuse to make a choice, this option was not openly expressed to them so the refusal to make a choice was accepted only on request. Following the structured choice question, respondents

Table 1: Comparison of characteristics of laparoscopic cholecystectomy (LC) and renal dialysis used in the case scenario.

	Severity of disease and importance of the intervention: are there alternatives?	Equity of access improvement	Cost-effectiveness based on economic evaluation*	Financial impact on government budget
LC for gallbladder disease	+ Medical treatment and open conventional (OC) surgery are both available.	++ 13% of patients in the country undergoing LC are under UC but have to pay a proportion of the cost. An alternative (OC) is available without a charge.	+++ Compared to open surgery, the incremental cost-effectiveness ratio (ICER) for LC is less than 1 Thai GDP per capita and so considered cost-effective.	- Relatively very small budget needed if it is to be included in the UC package. If included the indirect and direct non medical costs to households would also be reduced substantially.
Dialysis for end-stage renal disease	+++ The availability of kidney donors is very limited. Without dialysis or kidney transplantation patients will die within 3–6 months.	+++ Less than 5% of patients undergoing dialysis are under UC and have to pay the full cost. There is no alternative available for them.	- Compared to 'palliative care', ICER for dialysis is higher than 5 times Thai GDP per capita and so considered non cost-effective.	+++ Very huge financial impact on the overall UC budget.

*A report from the Commission on Macroeconomics and Health suggests the use of a threshold three times that of Gross Domestic Product (GDP) per capita as a basis for interpreting whether an intervention is cost-effective and should be adopted as a health technology in developing countries [32].
Marks: +++ "very high", ++ "high", +"moderate", – "none".

were then encouraged to discuss and explain their decisions using open question formats.

Analysis

All interviews were recorded on audiotape and transcribed verbatim. The first author read all the Thai transcripts and developed a list of codes (or themes) and sub-codes that were derived from respondents' understanding and reasoning behind their choices. One of our interests was to explore whether the respondents' different positions and duties influenced their attitudes and acceptance of using economic evaluation as a tool for healthcare rationing. The analysis also consisted of simple descriptive statistics (absolute counts and percentages) to describe policy actors' choices.

Results

The distribution of responses to the three pieces of information is shown in [see Figure 1]. Given the first information set about disease severity and treatment, 58% of respondents, including eight decision makers at national level, three hospital directors, seven health professionals and three academics opted to support the life-saving intervention, dialysis for chronic renal disease, rather than LC for gallbladder disease. The most common explanation from the supporters was that dialysis was a life-saving intervention, whereas LC was not life saving and without LC conventional open surgery was still effective and available to patients.

One academic respondent supported dialysis on the grounds that including it in the UC benefit package would reduce an inequality of access in the Thai health care system:

> "I preferred dialysis because at present all health insurance schemes except the UC provide dialysis to their beneficiaries" (academic).

A small group (one decision maker at national level, one hospital director and three health professionals) chose to reject dialysis and support LC, but mainly for reasons other than cost-effectiveness. The one policy maker believed that dialysis would not be a cost-effective option while the hospital director and the three health professionals believed that there would not be adequate financial or human resources, for example nephrologists and dialysis nurses to provide adequate dialysis, if the UC included it within the benefit package:

> "The government can spend money to buy dialysis machines right now as much as they want but they can't buy hundreds of nephrologists and nurses over night" (hospital director).

Five decision makers at the national level, one hospital director and four academics refused to make a choice at this stage and asked for more information on cost-effectiveness.

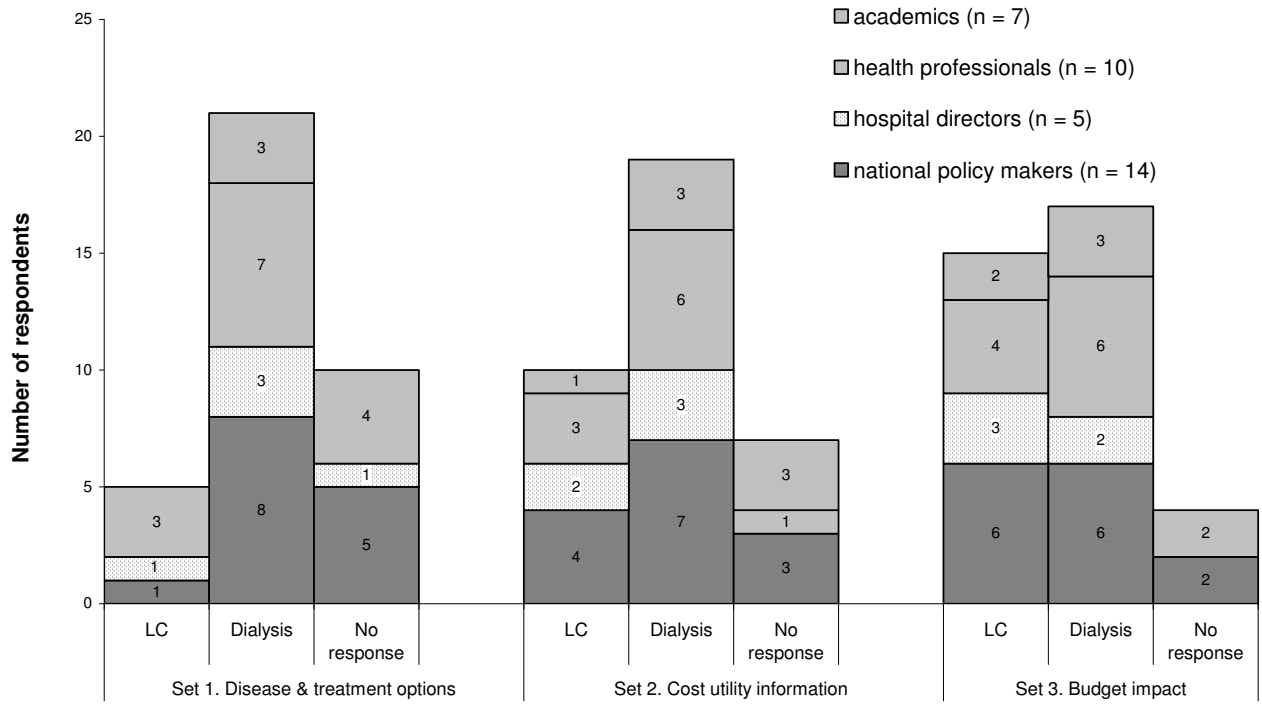

Figure 1
Distribution of choices by type of respondent after three sets of case scenario information were presented sequentially.

When the second information set was provided (economic evaluation findings), five respondents shifted to the LC (Figure 1). One policy maker at the national level shifted support from dialysis to LC and explained:

> "If I was looking at an individual patient I would choose dialysis, but I am currently making this decision for society as a whole and evidence shows that LC is a better choice" (national policy maker).

The other four who shifted their support to LC came from the group of ten who had previously not made a decision (two policy makers, one hospital director and one academic). They argued that the economic evaluation data were good enough to justify support of LC:

> "If these figures are right, it's clear that dialysis is cost-ineffective so I would not support it" (academic).

One policy actor, a health professional, moved from supporting dialysis to a no response after hearing the cost-effectiveness information and explained that her decision was based on confusion:

> "I know it [dialysis] is very important for patients with renal disease but your data make me feel that it may be too expensive to extend their life. I am now confused and not sure whether to support either" (health professional).

Despite the cost effectiveness information being presented, however, about half of the respondents (19 or 53%) continued to support dialysis. Most of them felt that in this particular situation it was ethically wrong not to support dialysis that could save a number of lives:

> "In my view, your choices (LC versus dialysis) are incomparable.... Even if the treatment proves to be cost-ineffective, not covering it might create the impression that critically ill patients are being abandoned" (national policy maker, senior administrator of NHSO).

Three decision makers at the national level also thought that the coverage decision should be made not only on theoretical and empirical grounds but importantly it should also make sense and be acceptable to the general

public. Since any decision made by them would be announced to the public they argued that it should be politically defensible. In this case, they thought that it was unacceptable to let patients with chronic renal disease die without offering proven effective treatment. They felt that because dialysis was a life-saving intervention, the general public would opt to support it over LC and so they would also like to do so:

> "If the UC announces to the public that it will include LC in the benefit package, I think that it will not be appreciated by many people. But if the UC is about to cover dialysis, it will be very much different" (national policy maker).

The decision shift away from dialysis to LC was most dramatic after the third information set was presented: the global budget impact of their decision. Three respondents shifted from a no response situation to LC (one policy maker at national level, one academic and one health professional), and two shifted from dialysis to LC (one policy maker at national level and one hospital director). Both of the latter explained they were now aware that the total cost of their decision to support dialysis was too expensive for the Thai healthcare system and that the government budget was too limited for dialysis in the long run.

After all three pieces of information had been presented more respondents (n = 17) still supported dialysis over LC (n = 15), despite LC's higher cost effectiveness. Four respondents still refused to make a choice for several reasons: both choices were not attractive and some alternative options were needed; the public should play a part in making this tough decision; and there was still not enough information to make a decision, for example the lack of cost-utility information for a range of potential interventions that needed to be considered at the same time:

> "We can't consider only two interventions. Theoretically, we need to compare altogether all interventions that are in and out of the package since we may find some interventions outside the package that are more cost-effective than these two" (academic).

Discussion

Cost-utility analysis is well accepted amongst health economists, given the number of publications in academic journals[29], but little is known about how policy makers and health professionals perceive and value its findings and whether such evidence is meaningful to them and relevant to the decisions they take[30]. The present study qualitatively illustrated how different health policy actors react to decision-making dilemmas about resource allocation, for example whether to give priority to cost-effective non-life saving interventions, or cost-ineffective life saving interventions.

The data presented on policy actors' responses when faced with a hypothetical but realistic decision confirms that health care policy actors saw limits to the usefulness of economic evaluation (cost-utility analysis)[31]. Twenty six out of 36 (72%) respondents were not convinced by the presentation of economic evaluation findings and chose not to support the inclusion of a proven cost-effective intervention in the UC benefit package. Even the majority of academics supported renal dialysis due to ethical or equity concerns. Indeed, there were only six respondents, including three policy makers at national level, one hospital director, one health professional and one academic, (6/36, 17%) whose decisions were influenced by economic evaluation evidence.

It seems reasonable to conclude that economic evaluation does not deal with many important factors or priorities that concern decision makers when they are making rationing decisions:

• ethical concerns relating to questions of saving life or equity;

• the availability and accessibility of treatment alternatives;

• awareness of the feasibility of policy options including availability of human and financial resources;

• organizational allegiances and institutionalised practices such as the primacy of the right to treatment;

• concerns about power over decision-making and wider political pressure on policy makers[31].

The findings presented in this paper add substance to and illuminate these complexities and difficulties. One of the most obvious difficulties is that economic evaluation ignores alternative ethical values that can be held by policy actors. More respondents, for example, decided that it was ethically right to prioritise a life-saving cost-ineffective intervention, dialysis, over a non-life saving cost-effective intervention, LC. This ethical preference clearly conflicts with economic evaluation, which is founded on a health maximisation philosophy, and echoes well-founded ethical positions that point to the importance of helping the neediest as the basis of philosophical justice[28,32,33]. Policy actors who prioritised severely ill candidates ahead of others, even though their treatment was less cost-effective, also argued that the majority of the public would have the same ethical values and expectations for healthcare rationing. In other settings studies

have explored public preferences towards the use of the QALY maximisation rule, and found that the general public's view does not always support maximising the number of QALYs gained[33]. People were willing to prioritise resource allocation to severely ill patients, even when they would benefit less from treatment than others, or were willing to reduce the number of QALYs gained in order to help those perceived to be most in need in terms of severity of illness.

Policy makers' concern about the public's support for QALY maximisation highlights the political factors that influenced coverage decisions in the case scenario. Among decision makers at the national level, despite their expressed concern about resource constraints and the need for efficiency, not all supported the cost-effective LC intervention because they were aware of the importance of gaining public support and acceptance of their decision. Their career paths are, to some extent, dependent on their ability to justify and defend their decisions politically and gain public acceptance.

Hospital directors, in contrast, had fewer concerns about public perceptions and by the end of the interview the majority (3/5, 60%) had rejected dialysis and supported LC. However the support for LC from two of these three directors was based on overall resource constraints rather than on the health maximising concept of economic evaluation, reflecting their responsibility for the management of the hospital's financial and human resources to deliver services.

Health professionals' are trained and operate within an institutional environment that means in principle they act in the best interest of the patient, so they are likely to prioritise patient care over economic considerations. This helps to explain why the majority (6/10) continued to support dialysis after the presentation of economic evaluation information. The majority of health professionals were more concerned about saving lives, even when the opportunity cost was a reduction in the quality of life of other individuals in need. This decision perhaps reflects the fact that health professionals' overriding professional responsibility is to the particular patient under consideration[34], and that they make decisions for individuals with less recourse to wider societal perspectives than the national policy makers.

Even in the case of academics trained in economic evaluation, more did not support the use of economic evaluation for prioritising healthcare than did. While they argued that improved efficiency through the use of economic evaluation was important they also stressed that this criterion needed to be balanced against equity and affordability. This illustrates the fact that the non-use or selective use of economic evaluation will not simply be resolved by providing appropriate education of information but incorporate various competing decision making priorities in order to gain widespread acceptance in the priority setting process.

It is important to note two possible limitations of these findings. First, the data on policy actors' decisions are based on a hypothetical scenario and in a real world scenario the decisions made may well have been different. For example in Thailand decision makers might look at just one intervention such as dialysis and consider affordability and cost-effectiveness, but not make comparisons across health problems. However, the scenario presented was a topical and realistic one. All the information provided, including the economic evaluation data and financial implications, were based on real studies and the case of dialysis was one of public debate at the time of the interviews because the government was considering its inclusion in the UC benefit package[35]. During the interviews it was evident that the respondents took the questions very seriously. Hence the decisions made in the hypothetical situation may, in fact, reflect the real preferences of respondents if they had been taking part in a real policy decision.

Second, this study was not undertaken to produce 'generalisable results' about how economic evaluation might be accepted or used in other settings. Decision makers elsewhere may attach more or less weight to different resource allocation criteria, and the same health technology may have different characteristics where it is offered in other settings. Also, it is not possible to generalise the findings from this study to all policy makers in Thailand. However, the qualitative design aimed to offer in-depth understanding about the complexity of decision-making in a specific context which can still be informative for analysts elsewhere.

Conclusion

The policy actors' perspectives and positions, presented in this and a related paper[31] have highlighted several difficulties and dilemmas for the introduction of economic evaluation into health technology coverage decision making processes in Thailand. There was a lack of consensus between and within different groups of health care policy actors on the best criteria for allocating scarce health care resources. However, interpreting the data on policy actors' different priorities and decisions, and the rationales behind them, it is possible to better understand the different priorities of policy actors and so inform better procedures for or management of a complex and unavoidable rationing process in healthcare.

Increasing the use of economic evaluation in Thailand, to make health technology resource allocation decisions more explicit and transparent, requires a search for how best to incorporate the tool within existing and competing decision making priorities. Otherwise, economic evaluation which is based mainly on a concept of 'the greatest happiness of the greatest number' would fail to provide a guide for making rational resource allocation in most cases.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

YT designed the study, carried out the data collection and analysis, and drafted the paper. SR participated in the study design, advised on the collection of data and made substantial contributions to the data interpretation and writing of the paper. All authors read and approved the final manuscript.

Additional material

Additional file 1

The first set of information: the two treatments and the expected recovery rates or quality of life.

Click here for file

[http://www.biomedcentral.com/content/supplementary/1472-6963-8-197-S1.doc]

Additional file 2

The second set of information: the cost utility ratios of the two interventions.

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[http://www.biomedcentral.com/content/supplementary/1472-6963-8-197-S2.doc]

Additional file 3

The third set of information: overall financial impacts for the government and patients.

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[http://www.biomedcentral.com/content/supplementary/1472-6963-8-197-S3.doc]

Acknowledgements

We would like to acknowledge and thank Prof. Miranda Mugford, who participated in the conception and design of the main study. We also thank Prof. Anne Mills and Dr. Richard Cookson for their comments and suggestions in the earlier version of this manuscript.

We are grateful for the joint financial support to the Health Intervention and Technology Assessment Program (HITAP) by the Thai Health Promotion Foundation, Health System Research Institute, Bureau of Health Policy and Strategy, Ministry of Public Health, and the Thai Health-Global Link Initiative Project (TGLIP). At the time this study was conducted the first author was supported by the World Health Organization under its Fellowship Program to study at the University of East Anglia.

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Pre-publication history

The pre-publication history for this paper can be accessed here:

http://www.biomedcentral.com/1472-6963/8/197/prepub

Title: A historical development of health technology assessment in Thailand

Running title: HTA in Thailand

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Abstract

Significant changes in Thailand's health systems can be observed since the late 19th century when the country gradually adopted western-style medicine including modern health interventions. Nevertheless, the introduction of the concept of health technology assessment (HTA) in this resource-limited society took place in a later period. This paper reviews the development of HTA including the socioeconomic context, outputs and policy utilization in the Thai setting.

Evidence suggests that contextual elements of the health systems, especially the country's economic status and health financing reforms, as well as their effects on government budgeting for medical and public health services, played an important role in the increasing needs and demands for HTA information amongst policymakers. In the midst of substantial economic growth during the years 1982 to 1996, a number of studies reported the rapid diffusion and poor distribution of, and inequitable access to high-cost technology in public and private hospitals. At the same time, economic analysis and its underpinning concept of efficiency were suggested by groups of scholars and health officials to guide national policy on the investment in health technology equipment. Related research and training programs were subsequently launched. However, none of these HTA units could be institutionalized into national bodies.

From 1997 to 2005, an economic recession, followed by the introduction of a universal health coverage plan, triggered the demands for effective measures for cost containment and prioritization of health interventions. This made policymakers and researchers at the Ministry of Public Health (MOPH) pay increasing attention to economic appraisals, and a number of HTA programs were established in the Ministry. Despite the rising number of Thai health economic publications, a major problem at that period involved the poor quality of studies. Since 2006, economic recovery and demands from different interests to include expensive technologies in public health benefit package have been crucial factors promoting the role of HTA in national policy decisions. Meanwhile, HTA capacity has been strengthened through the establishment of many health economic and HTA initiatives. An illustration of the work and contributions of the Health Intervention and Technology

Assessment Program (HITAP) is provided. In this phase, HTA-policy integration has been enhanced through different mechanisms and organizations.

In summary, over the past two decades a notable progression has been made in relation to the capacity building of HTA research and its policy utility in Thailand. Such development has been shaped by multiple factors. It is anticipated that experience gained amongst academics, health officials and civil society organizations will be helpful not only in sustaining the momentum but also in improving formal HTA systems in the future.

Keywords: Health technology assessment, History, Thailand, Economic evaluation, Health Intervention and Technology Assessment Program, HITAP

Introduction

Prior to the diffusion of western-style medicine into Thailand in late 1800s, the country's health care system was dominated by the practice of traditional healers who employed simple methods, e.g. observation, interrogation, auscultation and olfaction, for diagnosis of illness; and traditional interventions, such as herbal drugs and physical massage, for treatment of diseases. Modern medical technology played no role in this era. In addition, linking health care with religions seemed to be common (1). Many Buddhist temples acted as health delivery facilities or even medical schools at the same time. Given that such a non-industrialized system involved individual treatment, underpinned by philanthropic ideals of providing care to relieve sufferers of illness through the introduction of nature-based technologies, providers were largely unconcerned with the costs and efficiency of health care services.

However, significant changes in the Thai health care system took place during the reign of King Rama V (1853-1910): Thai society adopted modern instruments and knowledge as a means to survive colonization by greater powers. The introduction of western medicines in Thai life was accelerated after World War II when medical sciences greatly benefited from research and development of technologies dealing with diseases and injuries generated by military operations, and also the invention of military machines and equipment (2). Since then health care services have been increasingly reliant on complex technologies specifically created to serve medical and public health purposes. Although the development and adoption of these technologies has offered considerable advantages to the population's health, it was not without cost. For instance, it has caused and continues to cause large increases in health care costs, adverse effects--both preventable and unpreventable, and undesirable social consequences. In addition, access to health technology is one of the most distinct differences between the rich and the poor.

Recognition of the potential of health technology assessment (HTA), through analyses of safety, efficacy/effectiveness, costs, ethics and legal issues related to the acquisition and application of health technology, regarding decision making, and the interest in incorporating HTA into health technology resource allocation is rapidly evolving, not only in industrialized countries, but also in

developing nations where health care resources are more limited and the need for evidence-based decision making is even higher. In Thailand, although HTA is relatively new discipline, it has received great attention by stakeholders, and has made significant strides in recent years.

This paper aims to review the development of HTA in Thailand, with particular attention to the key driving factors, initiatives implemented and major achievements. It focuses on HTA as a form of *"policy research"* that measures short- and long-term consequences of the application or use of health technology (3). In Thailand, HTA can be traced back to the early 1980s when the first literature on this subject became available. This paper begins with a narrative of the Thai background and its health care system. Then it describes the early development of HTA in this country, followed by the second phase and the recent progression. The paper concludes with lessons learnt during the past decades and future challenges which may be relevant to decision makers, health care planners, academics and health personnel in other resource-poor countries.

Overview of Thailand and its health care system

Thailand is the 19th largest country of the world in terms of population with approximately 64 million people (4). Its economic structure has been transformed in the industrial and service sectors more than in the agricultural sector. Nevertheless, the country experienced a serious economic crisis in 1997, resulting in a sharp decline in the annual economic growth rate from 7% in 1996 to -1.7% in 1997 and -10.8% in 1998 (5). Poverty incidence increased from 17.0% in 1996 to 21.3% in 2000. In 2002, an economic recovery began and the proportion of people living under the poverty line dropped steadily to 11.2% in 2004 (6). In 2007, the overall Gross Domestic Product (GDP) in Thailand was 519 billion International dollars, with the Thai GDP per capita standing at 7,900 International dollars (7).

Overall resources devoted to health care have increased dramatically in recent years. The total health expenditure has increased at a faster rate than that of national GDP, from 3.5 per cent of GDP in 1979 to 6.09 per cent of GDP in 2000 (8). In 2001 Thailand achieved universal health care coverage through general tax revenue resulting in public health expenditure making up the majority of total spending (~70%) compared to private expenditure. The Universal Coverage scheme (UC) managed

by the National Health Security Office (NHSO) protects the 47 million people who are not eligible for the Civil Servant Medical Benefit Scheme (CSMBS), which covers 4 million government and state enterprise employees and their dependents, or Social Health Insurance (SHI), which is a mandatory health insurance for 10 million private sector employees in companies employing more than one employee (9). **Table 1** describes key characteristics of these major insurance schemes.

Table 1 Public health insurance schemes in Thailand

Public Health Schemes	**Civil Servant Medical Benefit Scheme (CSMBS)**	**Social Health Insurance (SHI)**	**Universal Coverage Scheme (UC)**
Year of introduction	1960	1990	2001
Responsible organization	The Comptroller General's Department, Ministry of Finance	Social Security Office	National Health Security Office
Beneficiaries	Government employees, dependents and pensioners	Private sector employees	The remaining population who are not covered by CSMBS and SHI
Population coverage (2007)	4 million, 6%	10 million, 16%	47 million, 75%
Sources of finance	Government budget (general tax revenue)	Tripartite payroll contributions by employee, employer and the government	Government budget (general tax revenue)
Payment to health facilities	Fee-for-service reimbursement	Capitation inclusive outpatient and inpatient services	Capitation for outpatient, disease prevention. A global budget with the application of

Public Health Schemes	Civil Servant Medical Benefit Scheme (CSMBS)	Social Health Insurance (SHI)	Universal Coverage Scheme (UC)
			case base payment, i.e. diagnostic related group for inpatient services.
Inclusion of health services	Almost all treatment interventions but not preventive measures. No clear benefit package defined.	A clearly defined benefit package for treatments. Pharmaceutical benefit based on the National List of Essential Medicines.	A clearly defined benefit package for both treatments and disease prevention and screenings. Pharmaceutical benefit based on the National List of Essential Medicines.

The Ministry of Public Health (MOPH) is the principal agency responsible for promoting, supporting, controlling and coordinating most health service activities offered at hospitals and health centres throughout the country (10). There are also, however, several other state agencies that play significant roles in medical and health development programmes such as the Ministry of Education, the Ministry of the Interior, the Ministry of Defence, the Bangkok Metropolitan Administration, and state enterprises. These agencies operate health facilities, including hospitals, which provide primary, secondary and tertiary medical services. During the last two decades, the private sector has expanded rapidly in Bangkok and other provincial cities. In 2004 there were 461 private hospitals (Bangkok 129, other provinces 332), 10,819 private clinics, 11,094 drugstores and 2,011 traditional medicine drugstores (10).

At the national level, the Thai Food and Drug Administration (FDA), under the MOPH, is responsible for the market authorization of drugs and medical devices. The market authorisation requires

evidence related to the safety, efficacy, and quality of the products from sponsoring companies. The Ministry of Commerce controls drug prices through mandatory price labelling of over-the-counter (OTC) drugs. The evidence used for price setting of OTC drugs includes information of cost structures and international prices submitted by pharmaceutical companies. Prices of non-OTC drugs are controlled by the "Medicine Price Ceiling" which is a list of maximum price for each drug that sellers are allowed to charge from public hospitals (11). The ceiling price set by the Committee for Development of the Medicine Price List is based on collective information on purchasing prices of similar drugs from every public hospital (11). There is no price ceiling or reference set for medical devices. It is determined entirely by market demand and supply. The prices of drugs and medical devices, which are commonly used across settings, are also controlled by the mechanism of bulk purchasing at the national and provincial levels (12).

The National List of Essential Medicines (NLEM) is a list of drugs, vaccines, radioactive substances, and disinfection agents that are necessary for the prevention and control of all major health problems in the country. The regulations mandate the MOPH to develop the NLEM. Public facilities are then required to procure medicines from this list. The NLEM is also referred to by the three public health schemes as the pharmaceutical reimbursement list. Also, the NLEM aims to be used as a tool to encourage the rational use of medicines (13). The cost of prescribed drugs outside the NLEM will be born by individuals under the SHI and UC schemes, but not the CSMBS. The CSMBS allows three medical doctors to co-endorse the use of drugs outside the NLEM (14). The first version of the NLEM was developed in 1972. The current version was issued in early 2008.

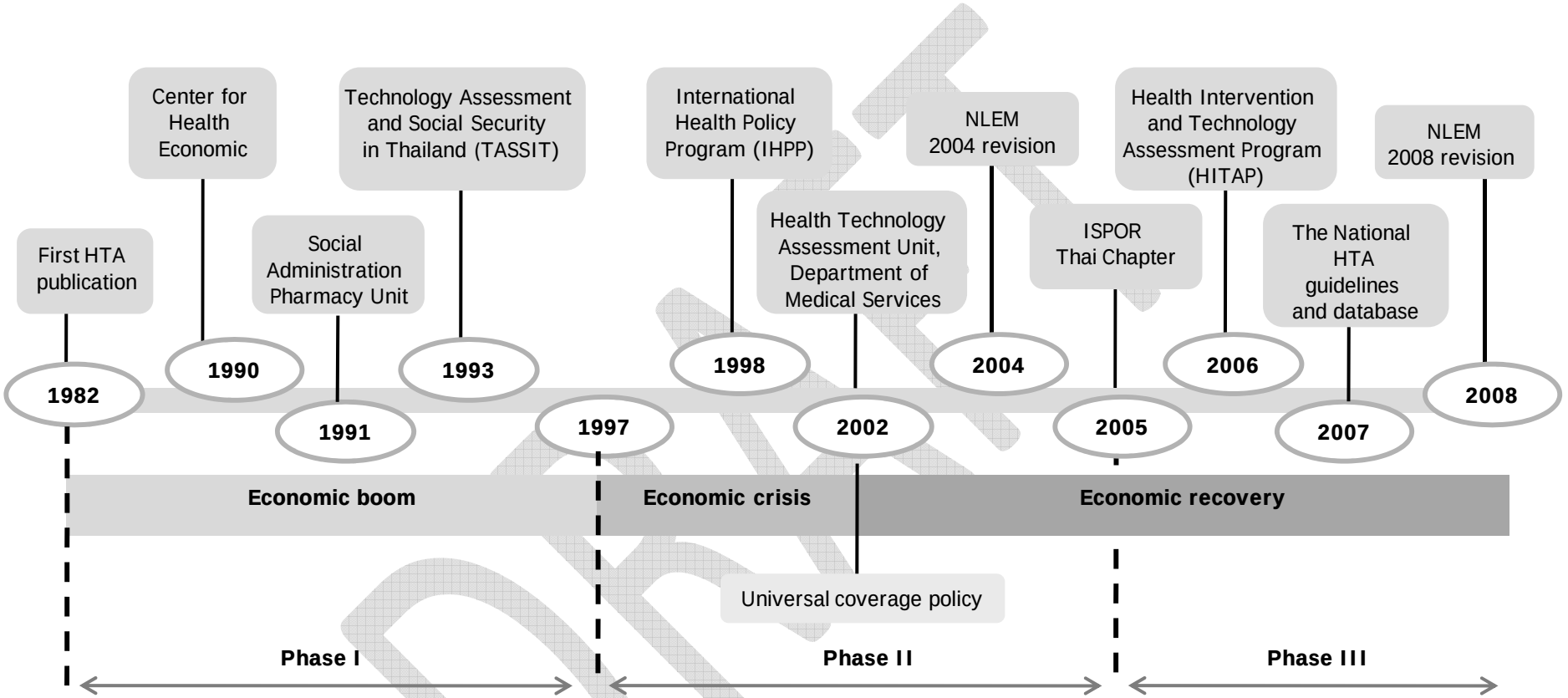
There is no reimbursement list for medical devices. They are controlled implicitly by their distribution by suppliers. The coverage of use of medical devices varies largely among the three public schemes. The CSMBS covers almost all medical devices using a fixed-rate fee-for-services payment while the UC and SHI schemes include use of medical devices as part of their basic health packages and support based on prepaid capitation. As a result, unequal access to and utilisation of expensive medical devices has been widely noticed e.g. CT scans, MRI and mammography between CSMBS versus UC and SHI beneficiaries (15).

Phase I (1982-1996): the introduction of the concept and practice of HTA in Thailand

During this period the average annual economic growth rate in Thailand was around 9%, which was the world's highest growth rate, and the GDP per capita increased 28 fold (4). The higher purchasing power of domestic patients in conjunction with a policy on 5-year corporate tax and import duties exemption from the Board of Investment prompted private hospitals to improve their facilities, employ more health professionals and invest in advanced and expensive medical equipment. Furthermore, it was not only the private health sector but also the public health care institutions that experienced unparalleled growth with considerable expansion of investment in health facilities including medical technology. These facts were well illustrated by Tangcharoensathien et al (5) who reported a rapid expansion in private hospital beds and an immense increase in the diffusion of CT scanners, MRI technology, and renal dialysis units in both public and private sectors during the period 1990-1996.

The problems of over investment in, poor distribution of, and inequity of access to advanced medical technology were recognised by academics and health personnel in medical schools where the investment in high-cost technology was concentrated. As a result, the likes of the Centre for Health Economics, Chulalongkorn University (1990) and the Social Administration Pharmacy units at Chulalongkorn University (1991) and Mahidol University (1992) were established during the period (see **figure 1**), aiming to utilise HTA to guide investment in the rational use of medical technology. However, with limited capacities and support in conducting research in this area, most activities of these units concentrated on the introduction of the general concept of HTA and providing basic training to their students. Although a number of HTAs were conducted, the studies adopted narrow viewpoints focusing mainly on the costs and short-term implications of big investments in tertiary hospitals. Some of these assessments were supported by international agencies, such as UNICEF, the WHO, the US Agency for International Development and the International Development Research Centre of Canada, but without national policy linkage, however. This led to limited utilization of HTA studies during the time.

Figure 1 Milestones on HTA development in Thailand, 1982-2008



HTA = Health technology assessment

NLEM= National List of Essential Medicines

ISPOR= International Society for Pharmacoeconomics and Outcome Research

In 1993 the most notable attempt to establish a specialised HTA unit was done by the collaboration between the Health Systems Research Institute (HSRI) of Thailand and the Karolinska Institute of Sweden. The program, the so-called Technology Assessment and Social Security in Thailand (TASSIT), was introduced (16). This initiative focused on the use of HTA as an information tool for public health insurance plans (17). Unfortunately, at that juncture it was a beginning phase of health insurance systems in Thailand. Only a small proportion of the Thai population (less than 30%) were covered by tax-based insurance plans so the government budget spending on health was not significant. This resulted in an underestimation of the importance of HTA by policy makers. In addition, TASSIT operated in the form of a loose network amongst academics who were interested in HTA and only worked on a part-time basis for the program. Owing to a lack of critical mass, especially full-time staff, and continuation in building up research capacity, there was no major output delivered and it was eventually terminated in the late 1990s.

Phase II (1997-2005): an increasing interest in HTA from decision makers

An economic crisis in Thailand began in mid 1997 as a result of poor management of the financial sector, excessive investments by private companies and inappropriate supervision of foreign currency exchange by the Bank of Thailand. This crisis resulted in huge foreign debts and currency deficits (5). It also prompted the Thai government to have to ask for a loan of 17.2 billion USD from the International Monetary Fund (IMF) and its alliances. The crisis had significant implications at both macro- and micro-levels including sharp reductions in values of currencies and asset prices, a sudden increase in unemployment, and a severe household income contraction. Poverty incidences increased from 17% in 1996 to 21% after the crisis.

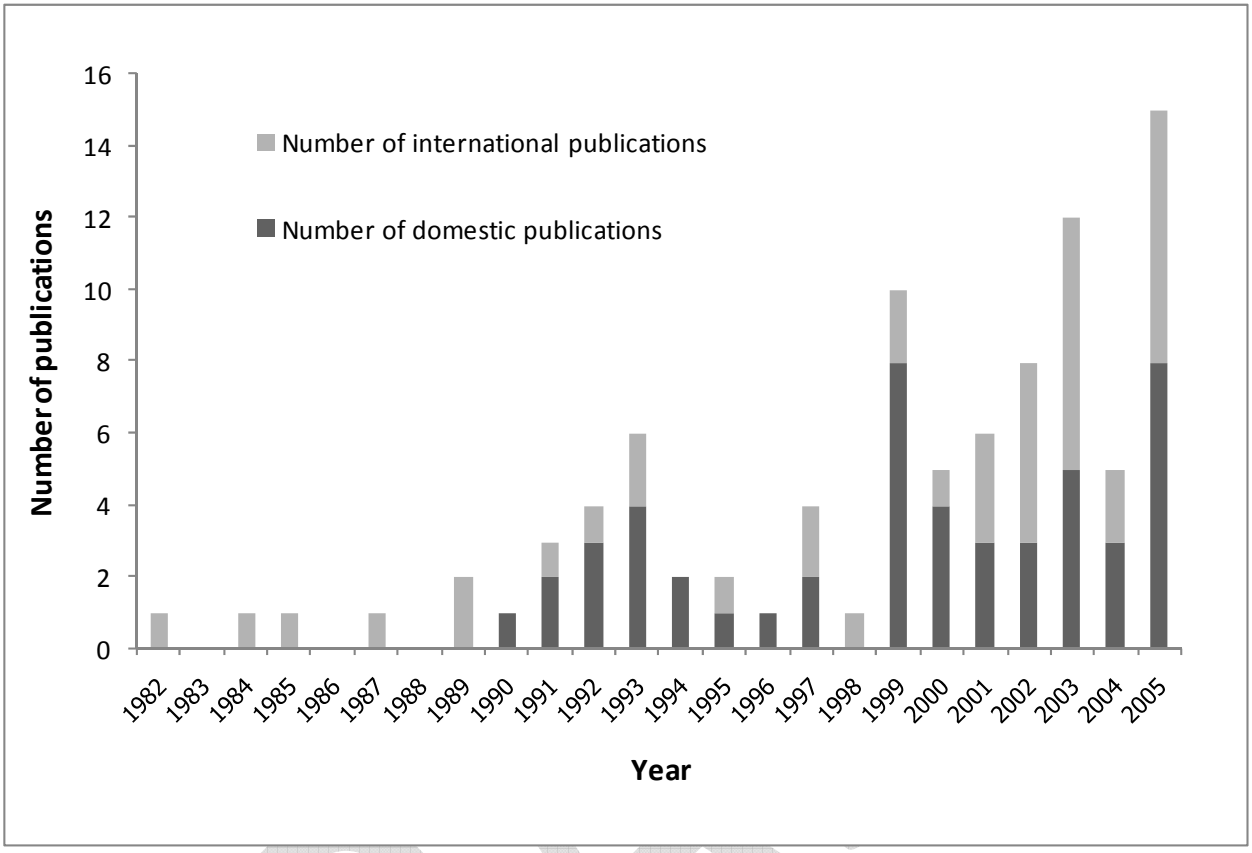
A decline in the ability to pay for health care caused by the crisis provoked pressure on the government to increase support to the public health system. A rise in public health spending, the expansion of coverage of public health insurance amongst Thais due to the increased number of the poor who are eligible for the coverage of the public health plan, and a growth in service utilizations in public health facilities was evidenced (5). Decision makers at national and hospital levels were under pressure from a rapid increase in demand for health services with little improvement in the financial

support. At this time, health care managers, especially within the MOPH, paid increasing attention to cost containment, in part through the introduction of HTA. The "Health Technology Assessment" unit was established in 2002 under the MOPH's Department of Medical Services. However, this division, with a limited research capacity, has only delivered a few HTA studies (less than 12) so far. It also relies solely on limited support from the MOPH budget, and has never had a clear plan for building research capacity for HTA. This HTA unit has played a very limited role in informing decisions about investments in health technology in real policy and practice.

In 2001, when the country's economic status started to recover, the government declared its intention to implement the universal coverage of health care with major financial reforms (18). The policy also aimed to harmonize the benefits, costs and management of several existing insurance schemes that would lead to an equitable healthcare system. The public share of the total health expenditure rose from 45% in 1994 to 64% in 2005 (19). The NLEM as the pharmaceutical benefit package for all public health insurance plans became very crucial because it has had a significant impact on the prescribing and dispensing of medicines throughout the country. Though the first establishment of the NLEM was in 1972, with subsequent revisions in 1982 and 1996, the revision of the 2004 NLEM was the first to introduce economic aspects as a criterion for drug selection apart from the safety and clinical efficacy (20).

Owing to growing pressure on the government to include high-cost services into the new universal coverage scheme, with a limited budget available, explicit health care rationing became a prime concern amongst stakeholders (21; 22). The need for independent units to carry out research for the prioritization of health interventions was raised by many decision makers and civil society groups. Unfortunately, the existing HTA unit at the MOPH was unable to meet the increasing demands. It appeared that universities and other research institutes could fill part of the gaps. **Figure 2** shows a significant increase in the amount of economic evaluation carried out in the Thai setting and published in both domestic and international literature between 1997 and 2005. This increase was a result of better resource and infrastructure development during previous decades. At the same time, however, poor quality evidence and methodology used and missed-targeted research towards the determination of cost-effective interventions to deal with major health problems were identified (23).

Figure 2 Numbers of Thai economic evaluation publications, international and domestic, 1982-2005



During this period, a notable institute with HTA activities was the International Health Policy Program (IHPP). Established in 1998 with the objectives of strengthening health policy and system research capacity, IHPP was a semi-autonomous research arm of the MOPH's Bureau of Policy and Strategy. The program possessed expertise of analyzing health care costs, and later expanded to the fields of epidemiology, health outcome research and qualitative policy analysis, all of which served well for HTA. During 2000 to 2005 a number of economic appraisals of health interventions were completed by IHPP researchers. These included "designing policy on investing in proton radiation therapy" (24), "economic evaluation of the national program to prevent mother-to-child HIV transmission" (25), "assessing the potential demand and willingness to pay for an AIDS vaccine in Thailand" (26), and "assessing the feasibility and value for money of providing universal assess to renal replacement therapy under the universal coverage scheme" (27). It is noteworthy that most HTA studies conducted by IHPP were actually used by policy makers at the national level. Pitayarangsarit and Tangcharoensathien (28) revealed the comparative advantages of IHPP over other research

organizations; that it was exposed directly to relevant policy questions, and had physical proximity to policy circles while it maintained political neutrality to deliver comprehensive and relevant answers to support policy decision making.

Phase III (2006-2008): a rapid growth of demand and supply for HTA

The limitation of the government budget for health care generated by the introduction of the UC policy was well recognised by decision makers at national and hospital levels. Meanwhile, different groups of people proclaimed that it was their right to get early access to new and/or expensive medical and public health interventions with support from strong civil society organizations and patients' representatives (29). They also demanded more transparent and participatory decision making. Dealing with such situations required knowledge-based management of flourishing health technology – the policy strategy clearly stated in the 10th National Economic and Social Development Plan (2007-2010) (30). A spotlight was shone on the need for a sound system for the assessment and management of health technology with the hope of finding a solution for the challenges ahead.

In July 2006, a group of IHPP researchers made a significant step by establishing the Health Intervention and Technology Assessment Program (HITAP) with financial support from the Thai Health Promotion Foundation, the HSRI and the MOPH's Bureau of Policy and Strategy. One way in which this differed from the previous attempts to set up HTA organization was that there was substantial support for HITAP to begin several activities necessary for setting up HTA systems in Thailand, where human resources, knowledge and infrastructure were under developed. HITAP proposes four main strategies namely 1) research and development of fundamental knowledge and infrastructure for HTA, 2) human capacity strengthening, 3) assessment of health technology and interventions, and 4) research and development of appropriate HTA management and social mobilization (22).

Under the first strategy, national standards and a body of knowledge to support HTA were developed, including the first version of methodological guidelines for economic evaluation in Thailand, a Thai HTA database, the societal value for a ceiling threshold (willingness to pay for a QALY) and a decision framework for resource allocation. It was expected that the work under this strategy would foster

methodological credibility and eventually, utilization of HTA results. At the end of 2007 a web-based HTA database was launched (31) and the health economic guidelines were also endorsed as national protocols for studies required in the inclusion of new medicines in the NLEM (32).

HITAP also built up the competence and capacity of its researchers in both short- and long-term aspects through three approaches. First, it increased the number of mentorships by selecting highly equipped Ph.D. graduates who committed themselves to participating in HITAP to increase their experience and to foster the transfer of knowledge to young researchers in an apprenticeship system. Second, HITAP recruited talented and committed young individuals to work with mentors on an on-the-job training basis. Third, HITAP supported apprentices who showed the capacity and commitment to study in Ph.D. courses, both local and abroad, in relevant topics such as health economics, epidemiology, evidence synthesis, ethics and resource allocation. As of August 2008, HITAP had 6 mentors and 28 apprentices, 5 of whom were undertaking Ph.D. study.

One of HITAP's main activities was to appraise a wide range of health interventions including drugs, medical devices, procedures, health promotion and prevention interventions, and public health policy. Unlike other formal HTA organizations in some industrialised countries, HITAP had no legal authority to make policy decisions but served as a technical advisor for all public health authorities at the national level who were responsible for the planning and management of health technology. There were two channels for HTA topics to be assessed by HITAP. First, HTA topics were proposed annually and prioritized by key stakeholders in the public sector including the Health Ministry's departments, public health insurance plans, Royal Colleges, professional associations, and the Subcommittee for Development of the NLEM. Detailed information about the selection and prioritization of HTA topics were reported elsewhere (33). This process was to ensure that HTA studies were policy relevant and met the needs of those decision makers.

Box 1: A list of HTA topics prioritized by stakeholders, which have been completed or are being evaluated by HITAP, 2007-2008

- Economic evaluation of screening and treatment options for postmenopausal osteoporosis
- Economic evaluation of HMG-CoA reductase inhibitors (Statin) for primary prevention of acute coronary syndrome amongst the Thai population
- The introduction of oral fluid based, rapid HIV antibody testing in Thailand's health service system: an analysis for policy development
- Evidence synthesis on the appropriate use of insulin analogue for diabetes patients
- Cost-utility analysis of recombinant human erythropoietin in anemic cancer patients induced by chemotherapy
- Assessing the feasibility and appropriateness of using PET-CT scans in Thailand
- Analysis of cost-utility on cochlear implantation for profoundly bilateral hearing loss patients in Thailand
- A cost-utility analysis of cholinesterase inhibitors for the treatment of mild- to moderate Alzheimer's patients
- A cost-utility analysis of hematopoietic stem cell transplantation for the treatment of acute myeloid leukemia, severe aplastic anemia and severe Thalassemia
- Cost-effectiveness of treatment options for chronic hepatitis B and C
- Cost-effectiveness analysis of prenatal screening and diagnosis of Down's syndrome in Thailand
- A household survey on attitudes and understanding towards the use of herbal medicines
- Evaluation of effects of advertisements on human papillomavirus vaccine in Thailand
- Economic evaluation alongside clinical study on providing rehabilitation services for stroke patients in Thailand
- Economic evaluation of oxaliplatin as the adjuvant therapy for colon cancer
- Rational use of high-cost antibiotics (i.e. carbapenem and the third generation of cephalosporins)
- Economic evaluation of rigid vs. foldable intraocular lenses for cataract extraction in Thailand
- Accessibility and appropriateness of using laparoscopic surgery amongst various groups of the Thai population with different health insurance schemes

In addition, some studies conducted by HITAP were identified by its staff based on the potential policy implications of the assessment results.

Box 2: A list of studies initiated by HITAP staff, 2006-2008

- An economic evaluation alongside a cluster randomized control trial of the routine offer of HIV counseling and testing at community hospitals in Thailand
- Assessing the implications of the compulsory licensing policy in Thailand
- Economic costs of alcohol consumption in Thailand
- Economic evaluation of oral fluid based, rapid HIV testing amongst patients visiting outpatient clinics in community hospitals in Thailand
- Analysis of measures for controlling drug prices in Thailand
- A systematic review and evidence synthesis on effectiveness and cost-effectiveness of policies and strategies for the prevention of HIV/AIDS
- Development of an optimal policy strategy for the prevention and control of cervical cancer in Thailand
- Economic burden of life-time treatment cost, and quality of life among invasive cervical cancer patients treated at university hospitals and regional cancer centres in Thailand
- Review of alcohol policies in Thailand and the roles of the Thai Health Promotion Foundation

As of August 2008 12 HTA studies had been completed and the majority of them were used by decision makers in a number of health authorities to determine the inclusion and exclusion of medicines or medical devices in public health benefit packages, designing new health initiatives, and informing current policy implementation **(see table 2).**

Table 2 HTA studies conducted by HITAP during 2006-2008 and related current policies

Research projects	Findings	Issues taken by	Current Policy
1. Economic evaluation on screening and treatment options for postmenopausal osteoporosis	Screening and treatment of osteoporosis among postmenopausal women were not cost-effective under the Thai context.	The Subcommittee for development of the NLEM.	Osteoporotic drugs were not included in the NLEM 2008 revision.
2. Economic evaluation of HMG-CoA reductase inhibitors (Statin) for primary prevention of acute coronary syndrome amongst the Thai population	Generic products of Simvastatin were very cost effective and should be administrated to those with high risk of development of acute coronary syndrome.	The Subcommittee for development of the NLEM.	Only Simvastatin was included in the NLEM 2008 revision.
3. The introduction of oral fluid based, rapid HIV antibody testing in Thailand's health service system: an analysis for policy development	There were limitations of using oral fluid based HIV test in public health facilities.	The Medical Device Control Division, MOPH	Not clear
4. Cost-utility analysis of recombinant human erythropoietin in anemic cancer patients induced	Erythropoietin was cost-ineffective for treatment of anemia induced by	The Subcommittee for development of the NLEM.	Erythropoietin was not recommended for treatment of anemia among cancer patients

Research projects	Findings	Issues taken by	Current Policy
by chemotherapy	chemotherapy among cancer patients.		in Thailand.
5. Assessing the feasibility and appropriateness of using PET-CT scans in Thailand	Evidence suggested that PET-CT scan may be appropriate for particular groups of cancer patients.	The Comptroller General's Department, Ministry of Finance	CSMBS expands indications for use of PET-CT scan among cancer patients.
6. Analysis of cost-utility on cochlear implantation for profoundly bilateral hearing loss patients in Thailand	Cochlear implantation was cost-effective in some particular groups.	The Subcommittee for development of benefits and service system under the UC.	The committee required more information on the budget implication before decision being made.
7. A cluster randomized control trial on the routine offer of HIV counseling and testing at community hospitals in Thailand	Routine offer HIV counseling and testing was effective in detection of new HIV infected persons compared to the current practice—voluntary HIV counseling and testing.	Health Department, Bangkok Metropolitan Administration and the NHSO.	The nationwide implementation of the routine HIV counseling and testing was under the consideration.
8. Assessing the implications of the compulsory licensing policy in Thailand	The evidence supports the benefits of issuing the government use of	The MOPH, the NHSO, and domestic and international	The government still supports the compulsory licensing policies issued between

Research projects	Findings	Issues taken by	Current Policy
	patent on antiretroviral and anticancer drugs.	NGOs	2006 and 2008.
9. Economic costs of alcohol consumption in Thailand	Alcohol exposed substantial costs to the society. The economic costs of alcohol consumption was by far outweighed its government revenue.	The House of Representatives, the Parliament of Thailand	The parliament passed the Alcohol Acts, B.E. 2551 (2008).
10. A systematic review and evidence synthesis on effectiveness and cost-effectiveness of policies and strategies for the prevention of HIV/AIDS	A number of proven effective and/or cost-effective HIV prevention options were identified for particular groups of Thais.	The Disease Control Department, MOPH, the NHSO, and the World Bank	A study was used to identify policy gaps and applied for development of HIV prevention campaigns.
11. Development of an optimal policy strategy for the prevention and control of cervical cancer in Thailand	Screening of cervical cancer was very cost-effective; nevertheless, the current screening coverage was very low. At current price, providing HPV vaccine was cost-	The MOPH's departments, and the NHSO	Massive campaign on cervical cancer screening at public health care facilities, while HPV vaccine was left in the private market.

Research projects	Findings	Issues taken by	Current Policy
	ineffective under the Thai setting.		
12. Review of alcohol policies in Thailand and the roles of the Thai Health Promotion Foundation	A number of alcohol policies had been implemented without appropriate enforcement, monitoring and evaluation for some particular policies. A number of recommendations were made to stakeholders including the Thai Health Promotion Foundation for reduction of alcohol consumption in Thailand.	The Thailand Health Promotion Foundation	Not clear

Note: NLEM stands for National List of Essential Medicines; MOPH, Ministry of Public Health; and NHSO, National Health Security Office.

The fourth strategy of HITAP is cross-cutting amongst the other three strategies including the improvement of HTA management within the organization and the integration of research findings into policy and practice. The past experience of HTA introduction in Thailand as well as HTA management in other settings were reviewed to draw lessons to support the development of a forthcoming national HTA institute, well equipped with necessary infrastructure and effective, transparent and coherent management mechanisms. To enhance HTA utility, HITAP also developed mechanisms to disseminate research results and related recommendations to relevant audiences, including policy makers, health personnel, patients, the health industry and the general public. HITAP communicated with stakeholders through policy dialogues, formal presentations and discussion at technical and policy forums, academic publications in domestic and international journals, and public media such as websites, newsletters, pocketbooks, newspapers, radio and television.

During this phase key stakeholders in the Thai health care system were very active in producing and utilizing HTA information. In 2005 academics, mainly from schools of pharmacy, multi-national drug companies and MOPH departments founded the Thai chapter of the International Society for Pharmacoeconomics and Outcome Research (ISPOR), aimed at promoting studies in the fields of health economics and outcome measures, and sharing knowledge and information amongst scholars, decision makers, and the health industry. Annual conferences hosted by this organization have been held since then, with an increasing number of participants. Furthermore, training courses on HTA related subjects such as evidence synthesis, economic evaluation, and decision analysis organized by universities and research institutes were found to be very popular. HTA and health economic units were set up by local offices of multi-national pharmaceutical companies.

With regard to HTA-policy integration, in 2007 the Subcommittee for development of the NLEM appointed the Health Economic Working Group, comprising academics and MOPH researchers, to support the use of pharmacoeconomics evidence for the selection of new and expensive medicines to the NLEM (34). The Working Group commissioned many domestic HTA units to

conduct relevant studies. The latest revision of the NELM in 2008 was the first time in Thai history that pharmacoeconomics evidence played an official role in designing the reimbursement list of pharmaceuticals (32). As the national guidelines for health economic evaluations are adopted by the Subcommittee, it is expected that the use of HTA in decision making will be expanded, in part, because it is a requirement that pharmaceutical companies submit pharmacoeconomics information for the next revision of the NLEM.

The NHSO, the Comptroller General's Department, the Social Security Office and the MOPH also implemented many policy recommendations drawn on HTA studies. Public health plans (see **table 2**) increasingly demand the use of health economics and other evidence in devising their benefit packages, for example, new indications for use of PET-CT scanners for cancer, and the introduction of provider-initiated counselling and HIV testing in community hospitals. Meanwhile the MOPH used HTA information to improve its own vertical programs e.g. the national cervical cancer screening program as well as supporting national policy formulations e.g. the use of compulsory licensing on cancer drugs.

In addition, according to the revised Medical Device Act B.E.2551 (2008), the assessment of the social, economic and ethical impact of medical devices with a cost higher than 100 million Baht (US$ 3.3 million) is mandatory prior to market authorization. According to the Act, the MOPH designates HTA units in and outside the country to conduct the assessments, the costs of which are shouldered by the industry. The next challenge is that a draft of the revised Drug Act, including use of economic evidence for medicine registration, will undoubtedly provoke serious debate amongst stakeholders. The centre of discussion focuses on two major issues: whether it is appropriate to consider value for money of medicines in the process of market approval and whether Thailand has sufficient capacity to do so.

Discussion

Every health care system in both industrialised and developing nations shares similar problems that arise from the advancement of medical technology whilst health resources are constraints. During previous decades, many health care systems in Europe, North America and Australia

developed formal systems for the assessment and management of health technology (3; 35); however, this was hardly to be seen in developing nations. This present paper describes the historical background on the development of HTA in Thailand where considerable improvement has been observed in recent years. It shows that the social and economic environment was one of the key factors attributable to the continuously increasing demand for HTA. During the bubble economy period, rapid and excessive investment in the health sector provoked considerable concerns over HTA amongst academics and health personnel. The consequences of the financial crisis in 1997 and, subsequently, the introduction of the universal health coverage policy in 2001 prompted action amongst decision makers to demand HTA evidence in resource allocation.

Because of the relationship between HTA and the social and economic circumstances, HTA needs to be a national agenda. It is expected that locally funded and developed HTA will have a greater influence on national policy than that it depends heavily on external sources. Teerawattananon et al (23) demonstrated that HTA studies funded by international organisations in the past failed to address national priority and national health system needs. It can be observed that HTA in Thailand has developed significantly over the past three years because national authorities have placed evidence-based decision making high on their health research agendas.

Not only the availability of financial resources but also absorptive capacity including appropriate strategies to effectively manage its organisation, are crucial for HTA development. Human capacity and infrastructure for HTA is a vital factor in the success or failure in development of HTA systems. Building up research capacity requires collective efforts and time before its impact can be clearly visible. Nevertheless, the funding for capacity development is usually ignored by funding agencies (36). It can be seen in this case study that Thailand spent more than two decades strengthening human resources and infrastructure to get momentum. It also continues to require support to maintain and improve HTA capacity not only amongst scholars who produce HTA evidence but also decision makers, health personnel and, importantly, the general public whom decision makers and health professionals are sensitive as to what is of their best interest.

The literature suggested that research policy nexus is encouraged by several factors. In addition to research quality, strong relationships and trust between decision makers and researchers are indispensable (37). Apart from financial, human capacity, and infrastructure, participation from stakeholders and transparency will help increase the impact of HTA. However, information regarding management of HTA organisations in Thailand in phases I and II was lacking whereas detailed descriptions of examples of good practice for HTA processes at HITAP were documented elsewhere (22).

HTA in Thailand and other societies emphasises assessing value for money of health interventions (23; 38; 39); whereas, theoretically, HTA considers measuring health, social, economic and ethical consequences of applications of health technology. This may be partly explained by the fact that its current main users, policy makers, are concerned with increasing health expenditures, and the ineffective and inappropriate use of health technology (40; 41), and wish to improve the efficiency of the health care system (42). The use of HTA evidence by policy makers at the present time is of a voluntary nature. It is challenging to expand HTA focuses beyond the efficiency aspect. This would, however, result in an increasing interest in HTA amongst other groups, e.g. health professionals and the general public. Ultimately, HTA would be demanded by the society.

The major application of HTA is in the areas of pharmaceuticals and medical devices because it is easier to integrate the assessment into the regulatory and policy frameworks in which the three public health insurance programs and the Subcommittee for Development of the NLEM legally exist. These bodies are responsible for the regulation of these products. In contrast, HTA was less developed and applied to the fields of health prevention and promotion, and social/public health initiatives because no responsible legal authority exists and thus, these areas have not been rigorously regulated in Thailand (43). Owing to an increasing demand for cost containment and efficiency of insurance programs, assessment of these initiatives tends to be favourable in the near future. An example can be drawn on the case of the National Institute for Health and Clinical Excellence of England and Wales which has recently extended its mission to appraising

public health interventions, after focusing only the assessment of pharmaceuticals, medical equipment and interventional procedures since its establishment in 1999 (44).

In conclusion, the historical development of HTA in Thailand suggests that this form of policy research is associated with needs, demand and supply. The success of HTA requires a balance between these three factors. During the early phase of development when only the need existed but the demand was neither recognised by decision makers nor promptly offered by scholars, the progression was obstructed. In the second phase when the needs were presented and the demand recognised by decision makers, a slow development could be visible. The rapid expansion in recent years was facilitated by the presence of considerable supply to address the existing needs and demands. However, good planning, sound management and long-term investment in capacity building are still the main ingredients to the future success. Over twenty years of Thai experience, lessons can be learnt and used as guidance to pave the way for the future of the formal foundation of HTA systems in Thailand.

Acknowledgement

This paper was developed as part of work under the Health Intervention and Technology Assessment Program's Social Mobilization and Public Communication Plan. The program was funded by the Thailand Health Promotion Foundation, Health Systems Research Institute, the Bureau of Policy and Strategy, Ministry of Public Health, Thailand, and Thai Health-Global Link Initiative Project (TGLIP).

Conflict of Interest

All authors are researchers of the Health Intervention and Technology Assessment Program. They have no financial involvement in writing up this manuscript.

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Strengthening cost-effectiveness analysis in Thailand through the establishment of the Health Intervention and Technology Assessment Program

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Abstract

Capacity is limited in the developing world to conduct cost-effectiveness analysis (CEA) of health interventions. In Thailand, there have been concerted efforts to promote evidence-based policymaking including the introduction of economic appraisals within health technology assessment (HTA). This paper reviews the experience of this lower middle-income country, with an emphasis on the creation of the Health Intervention and Technology Assessment Program (HITAP), including its mission, management structures and activities.

Over the past three decades, several HTA programs were implemented in Thailand but not sustained or developed further into a national institute. As a response to increasing demands for HTA evidence including CEA information, HITAP was created in 2007 as an affiliate unit of an autonomous research arm of the Ministry of Public Health. An advantage of this HTA program over previous initiatives was that it was hosted by a research institute with long experience of conducting health systems and policy research and capacity building of its research staff, and excellent research and policy networks. To deal with existing impediments to conducting health economics research, HITAP's main strategies were carefully devised to include not only capacity strengthening of its researchers and administrative staff, but also the development of essential elements for the country's health economic evaluation methodology. These included, for example, methodological guidelines, standard protocols and benchmarks for resource allocation, many of which have been adopted by national policymaking bodies including the three major public health insurance plans. Networks and collaborations with domestic and foreign institutes have been sought as a means of resource mobilization and exchange. Although HITAP is well financed by a number of government agencies and international organizations, the program is vulnerable to shortages of qualified research staff, as most staff work on a part-time or temporary basis.

To enhance the utilization of its research findings by policymakers, practitioners and consumers, HITAP has adopted the principles of technical excellence, policy relevance, transparency, effective communication, and participation of key stakeholders. These principles have been translated into good practice at every step of HTA management. In 2007 and 2008, HITAP carried out assessments of a wide range of health products, medical procedures and public health initiatives. Although CEA and other economic evaluation approaches were employed in these studies, the tools and underlying efficiency goal were considered inadequate to provide complete information for prioritisation. As suggested by official stakeholders, some of the projects investigated broader issues of management, feasibility, performance and socio-political implications of interventions. As yet, it is unclear what role HITAP research and associated recommendations have played in policy decisions.

It is hoped that the lessons drawn on the creation of HITAP and its experience during the first two years, and information on its main strategies and management structures, may be helpful for other resource-constrained countries in thinking how best to strengthen their capacity to conduct economic appraisals of health technologies and interventions.

Key words

Cost-effectiveness analysis, health technology assessment, capacity strengthening, developing countries, Thailand

Introduction

Economic evaluation of health interventions is especially critical in the developing world given severe resource constraints and substantial demands for medical services and health care [1]. Despite its importance, the availability and utility of research in this area is limited as a guide for the adoption, distribution and use of health technologies in resource-poor societies. The literature identifies several impediments, technical and political, to introducing economic appraisal to inform health policies in these settings [2, 3]. However, positive evolution can be observed as the concepts of cost-effectiveness analysis (CEA) are gradually spread through the work of academic institutes, and studies of costs and consequences of health products, medical procedures and public health interventions are drawn on by medicine control authorities, health insurance programs and health technology assessment (HTA) units [4].

In Thailand, there have been concerted efforts amongst experts and health officials to foster evidence-based policies and professional practice, in part by incorporating research findings into decision making processes [5]. Economic evaluation has been promoted as a scientific tool to pursue efficiency in health care delivery. However, this mission has faced considerable obstacles, for example insufficient scientists in the field, lack of policy support, and misperceptions of the approach amongst health professionals and administrators [6]. In early 2007, an organization known as the Health Intervention and Technology Assessment Program (HITAP) was set up, with the aim to generate evidence necessary for priority setting and resource allocation to health technologies and initiatives. During its initial phase, this HTA institute has not only conducted a number of research studies involving CEA, but also has carried out capacity building activities, and is expected to contribute to notable changes in the country's health policy decisions in the near future.

The Thai experience of seeking to establish a national institute for CEA and HTA in what is still only a lower middle income country is unusual, and may be of interest for other countries thinking of creating similar initiatives. This paper reviews the attempts to introduce HTA and economic evaluation in the decision making of policymakers and practitioners in Thailand, from the perspectives of those involved in creating HITAP. The emphasis is on the establishment of HITAP and its contributions not only to national policy development but also to capacity strengthening in the field of CEA, and to how the mission, management structures and activities of HITAP were adjusted to suit the Thai context.

The context

Thailand has a population of 63 million and GNI per capita of US$3,400 * in 2007 [7, 8]. Total health expenditure (THE) has increased from 189 billion baht (3,000 baht, US$ 99† per capita) in 1997 to 248 billion baht (3,960 baht, US$132 per capita) in 2005 [9, 10]. Public sources and household out-of–pocket spending account for 63.3% and 27.8% of THE, respectively. Over 90% of the Thai population are beneficiaries of 3 publicly-financed health insurance plans: Universal Health Coverage (UC) providing care to 45 million, Social Health Insurance 10 million and Civil Servant Medical Benefit Scheme 4 million. Health care providers in the public sector, especially the Ministry of Public Health (MoPH)'s network of general hospitals, sub-district level health centers and specialized units, play a major role in health delivery [11]. Private services are available in hospitals and clinics for those who can afford the prices.

Efficacy, safety and quality are the three main elements assessed by the Thai Food and Drug Administration (Thai FDA) in the approval of medicines and medical devices for marketing

* 7,880 international dollars

† Exchange rate: 30 baht per US dollar

and use in the country[12]. However the cost-effectiveness of health products, medical procedures and public health interventions is a major concern of the three public insurance plans. Since the introduction of UC in 2001, the need for economic appraisal including budget impact analysis has increased significantly. The pharmaceutical benefits covered by all public plans are those on the National List of Essential Medicines (NLEM). Efficiency has been a concern of the Subcommittee for NLEM development‡ since the major health system reforms to counter the effects of economic recession in 1997.

Despite the increasing demand for CEA amongst national policymakers, the supply of economic evaluation information has been inadequate and has not targeted the major health problems of the country[13]. Research on the costs and clinical consequences of health products and programs has for long been conducted and taught in schools of medicines and economics in Thailand. However, critical assessment of existing health economics studies has demonstrated room for improvement, as their quality was poor. A 2007 survey suggested that research capacity in the area of health economics needed to be strengthened, as the number of well-trained scientists was limited, and their working environment was not conducive to conducting appraisals of high quality[14]. The lack of national methodological standards and insufficient infrastructure to support economic evaluation of health interventions were also identified as key problems. Furthermore, there were notable barriers to introducing cost-effectiveness evidence into the practices of health professionals, such as distrust of research methods, conflict with routine decision-making procedures, and ideological tensions between the pursuit of efficiency underpinned by economic analysis, health maximization and professional ethics[6].

However, a fertile soil for the later development of CEA expertise was provided by investment in health policy and systems research (HPSR). Over the past three decades, HPSR has developed and contributed substantially to policy making and implementation in Thailand [5, 15]. Many institutes have been established not only to conduct policy-relevant studies but also to provide research-related support, for example grants, human resource development, information system and knowledge management. Set up in 1992 as an autonomous state agency, the Health Systems Research Institute (HSRI) is responsible for strategic planning of the country's HPSR and advocating knowledge-based policies. A wide range of research areas are covered by the HSRI's alliances including health care financing and resource allocation, quality management, human resources, and the health delivery system, as well as issue-based projects such as those on avian influenza preparedness, disability, alcohol and narcotic substances. To mobilize resources to support HPSR, the HSRI collaborates with many local partners such as the Thailand Research Fund, Thailand Health Promotion Foundation (ThaiHealth), academic institutes and non-governmental organizations (NGOs).

As part of the HPSR developments, two attempts were made to establish HTA units at national level to carry out CEA. In 1993 a plan was introduced by a group of epidemiological and clinical experts, with support from the HSRI and Karolinska Institute [16]. This program failed to scale up and eventually faded out in the late 1990s because of insufficient human resources and infrastructure for health economic appraisal. In 2004 an international collaborative research project between the MoPH and the University of Queensland was introduced with the title 'Setting Priorities using Information on Cost-effectiveness (SPICE)' [17]. This project is supported by the Wellcome Trust but with no long term commitment, so it will end in 2009.

‡ A subcommittee under the National Drug Policy Committee

The establishment of HITAP

In the end, the creation of a national HTA capacity has been instigated by the International Health Policy Program (IHPP), a semi-autonomous research arm of the MoPH's Bureau of Policy and Strategy. Since its establishment in the late 1990s, IHPP's studies had expanded from those classified as health care financing into other areas such as health economics, health workforce, and health system performance [18]. Its expertise in analyzing health care costs was an important platform for fostering its capacity to do CEA. Between 2000 and 2003, economic evaluation approaches were employed by IHPP researchers to assess various health interventions and initiatives, for example interferon-alpha, the national program to prevent mother-to-child HIV transmission, use of micro-nutrient supplements in HIV treatment, and proton radiation therapy. Nevertheless, it was clear that existing capacity in Thailand could not accommodate the increasing demands for HTA from policymakers, especially the Subcommittee for NLEM Development, MoPH's departments and the three public plans [19].

As one of IHPP's missions was capacity building in HPSR, long-term scholarships granted by the World Health Organization and other national and international agencies were available to send its research fellows to post-graduate courses in universities in Europe, the United States and Australia[15]. A number of these young researchers chose to study the areas of health financing and economics and therefore, were expected to have a role in generating evidence to inform health resource allocation.

In early 2006, a the draft proposal on the establishment of an HTA division of IHPP was submitted to ThaiHealth, HSRI and the MoPH's Bureau of Policy and Strategy, who were known to be receptive. While awaiting official approval, in July 2006 a group of interested researchers, including those in the IHPP and an alliance of university lecturers, started to work out strategic and management plans for HITAP. Its first task, in August 2006, was to prepare standard guidelines on health economic evaluation, suitable for use in the Thai setting. This set of guidelines was adopted by the NLEM Subcommittee in December 2007, and became the first edition of the national health economic appraisal guidelines.

With the aim of becoming a national HTA institute, HITAP was officially launched as a 3-year initiative[4]. During this phase the program is affiliated to IHPP, under the supervision of an advisory committee comprising senior health officials, public health experts and academics in relevant fields. Despite the original goal of fulfilling the need for the assessment of costs and outcomes of health technologies, there was consensus that HITAP's studies should address the effects and implications of interventions, programs and public policies introduced in the health sector more broadly, i.e. beyond the boundaries of health economics.

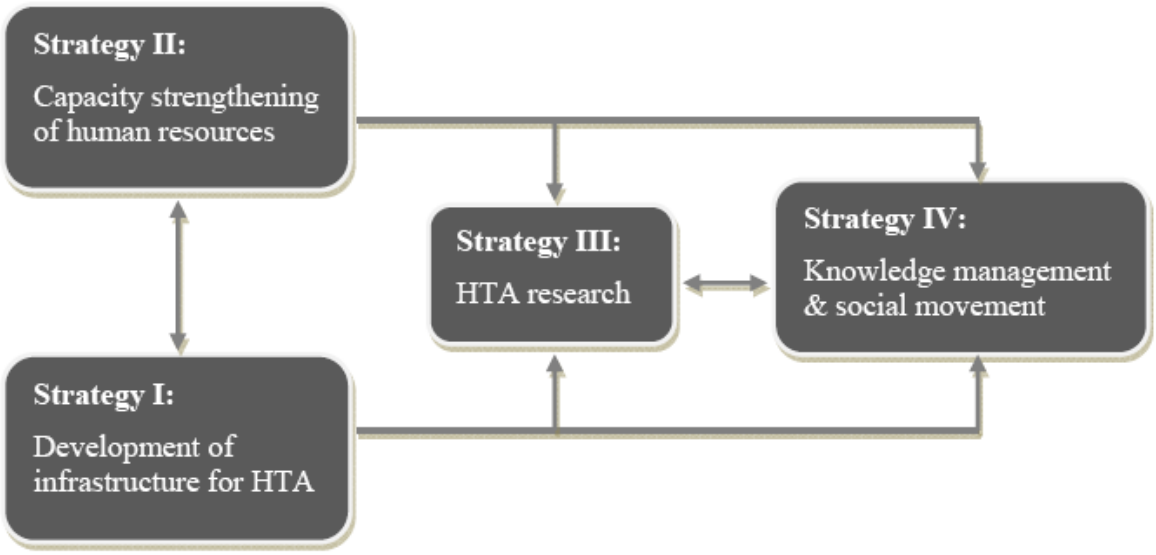
Vision, mission and strategies

As an HTA institute, the ultimate goal of HITAP is to provide policymakers, health professionals and the public with scientific evidence concerning the costs and benefits associated with the introduction of health products, procedures and programs. To achieve the vision: 'appropriate health interventions and technologies for the Thai society', HITAP's mission is to (1) efficiently and transparently appraise health interventions and technologies by using international, standard methodologies, (2) develop systems and mechanisms in order to promote the optimal selection, procurement and management of health technology as well as appropriate health policy determination, and (3) distribute research findings and educate the public in order to make the best use of health interventions and technology assessment results.

During the first three years of HITAP, this mission has been translated into 4 main strategies, each of which aims to overcome existing impediments to conducting HTA and also to enhance the value of research by introducing the knowledge management concept (figure 1).The need

to improve infrastructure for economic assessment of health interventions was addressed by Strategy I. Essential elements included identifying and developing a body of knowledge to support HTA studies which took into account not only international standards but also the resources and infrastructure constraints of the Thai context. Activities included the development of a database on HTA studies conducted in Thailand, methodological guidelines, and a societal value-based ceiling threshold. As Tangcharoensathien and Kamolratanakul [20] argue, standardization of research designs and methods in health economics was indispensable to enhance the accuracy, reliability and therefore utilization of research results. Although the guidelines, which were adopted as national protocols in late 2007, mainly focus on health economic methodologies, two chapters discussed the role of research including cost-outcome analysis in real-life policy processes [21] and health system and equity perspectives in HTA [22].

Figure 1: Interrelationship between HITAP's strategies, 2007-2009



The problems of insufficient supply of health economists as well as inadequate knowledge and understanding of HTA among potential users of the research were addressed by education and information programs under strategy II. Training programs on basic and advanced health economics have been run annually, to increase the number of young researchers in the field. So far these have been popular amongst stakeholders and more than 60 policy makers and health care planners, 35 health professionals, and more than 110 researchers from both public and private institutes have attended the programs. HITAP's staff continue to provide technical support, upon request, to these trainees even when they return to work in their institutes.

The growing needs for HTA, in particular for cost-effectiveness and budget impact appraisals, were dealt with by conducting research under Strategy III. This provided the opportunity for research fellows to be exposed to policy-relevant research questions and to gain research experience through on-the-job training in conducting an HTA. Health interventions to be assessed by HITAP were annually proposed and prioritized by key stakeholders including representatives of the Health Ministry's departments, Royal Colleges, professional associations, and health plans[23].

Cross-cutting issues to improve HTA management and the integration of research findings into policy and practice were the emphasis of Strategy IV. The lessons of HTA management in some developed and developing countries as well as past experience in the Thai setting were examined. Other activities included evaluation of HITAP performance, social mobilization, public relations and international collaborations, though during the first two years, policy advocacy and social mobilization was largely passively done.

Management of HITAP

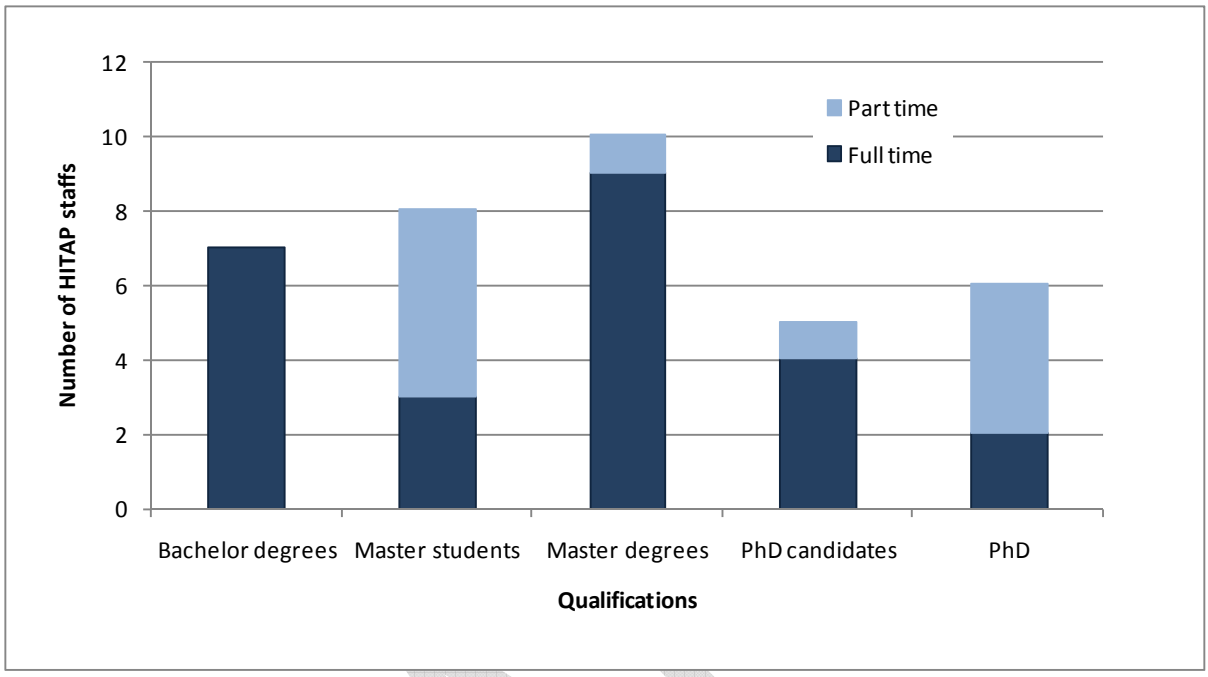
Finance

The first three years of HITAP were well resourced with approximately 45 million baht (US$ 1.3 million) from ThaiHealth and HSRI. The largest share of the budget was allocated to the assessment of health policies and interventions and also to logistics and administration. Evaluation studies were carried out free of charge though certain costs, such as those for organizational and staff development, could be reimbursed from the MOPH's Bureau of Policy and Strategy. In addition, although additional funding was not needed for core activities, HITAP applied for research grants for various reasons including to address urgent needs for evidence and policy recommendations on particular health and health system problems, to develop technical cooperation with other organizations and to diversify sources of funding. For example, an assessment of the national cervical cancer control program including CEA of existing screening techniques (Pap smear and visual inspection with acetic acid), in comparison to the recently-launched human papilloma virus vaccination, was sponsored by the World Bank's Program on Reproductive Health. In 2007 and 2008, additional grants obtained by HITAP accounted for 30% of the total budget.

Staffing

In July 2008, the total number of HITAP staff was 36, with a full-time: part-time ratio of 70:30 (figure 2). Researchers, research fellows and research assistants accounted for 78%, while the others were program managers including IT personnel, accountants, and public relations staff. Most (82%) of the research workforce had first degrees in health sciences, namely pharmacy (15 of 28), medicine, public health, and nursing. The areas of postgraduate study among HITAP researchers and research fellows ranged from health economics, pharmacy administration, clinical pharmacy, public policy, information technology, and population development. Only 6 researchers had PhD training.

Figure 2: Number of HITAP staff, by qualifications as of July 2008

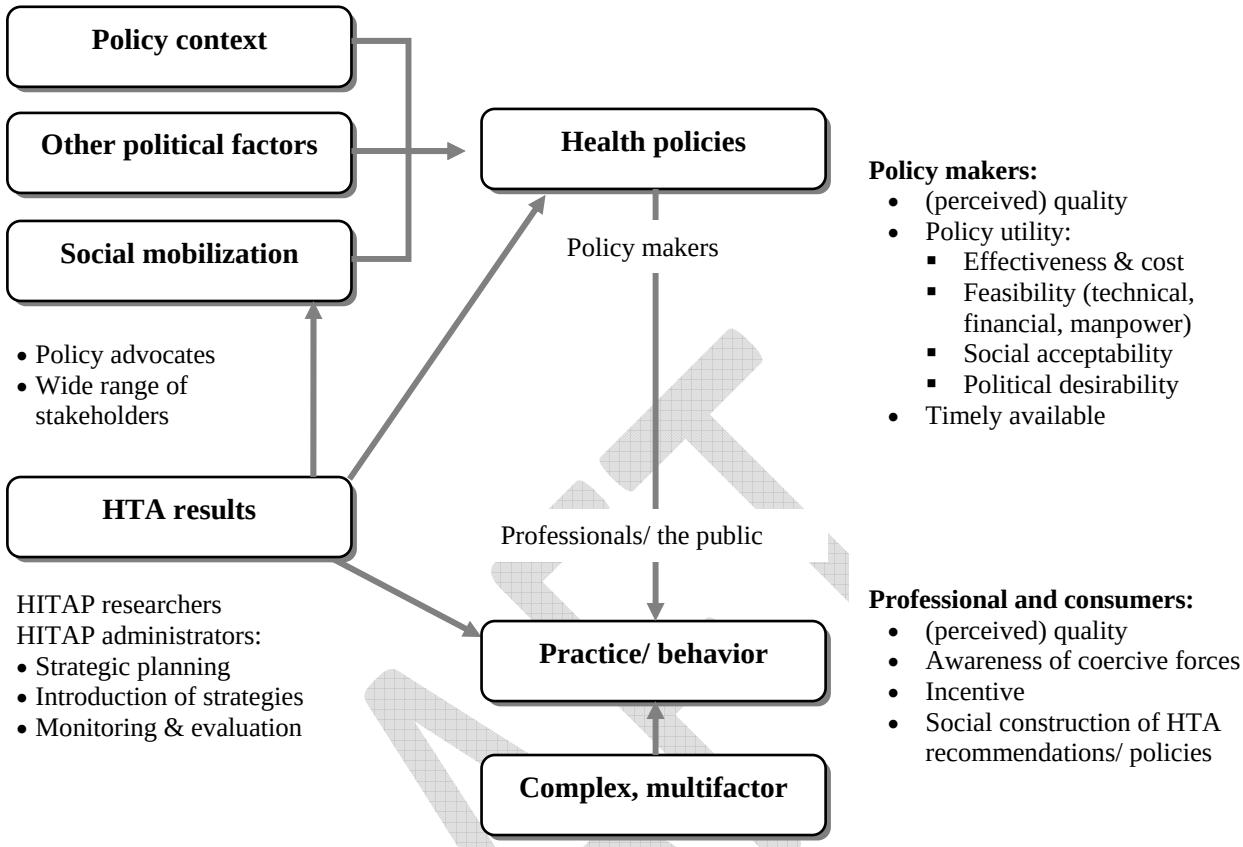


Of those with PhD training, 4 were university lecturers who worked at HITAP on a part-time basis, while the other 2 were health officials, and the ratio of PhD and non-PhD research staff was almost 1:5. In addition, 7 postgraduate students trained to conduct economic appraisals were government officials on study leave, and the 2 full-time PhD and 3 full-time research fellows were on secondment, holding permanent positions in the Ministry of Health's departments or hospitals. The longest these officials can leave their office is three years. Thus HITAP was vulnerable since it relied heavily on a temporary research workforce, and many were students with very little research experience needing supervision from senior staff. Recruitment of qualified researchers to work permanently in the program was difficult. The major impediment was the shortage of PhD graduates, in particular in the area of health economics and pharmacoeconomics where multinational companies could offer much more attractive incentives. Although HITAP's salary scale was higher than that of many other government agencies, it was not comparable to the private sector. Uncertainty over its future might be another factor discouraging qualified persons from joining.

HITAP's management strategy and approaches

HITAP developed its management approach to HTA research by drawing lessons from organizations with similar mandates in Thailand and elsewhere. Foreign prototypes were modified to suit the newly-established program and the emerging context. To enhance HTA's utility including the promotion of the use of economic evaluation in decision making, a conceptual framework was devised to understand the processes and determining factors (figure 3). The literature suggests that integrating research into policy and practice is complex, involving many stakeholders and contextual elements [24, 25]. Despite the differences between points of concern of policymakers, professionals and consumers when they make decisions in relation to health technologies, 5 common strategies to address the issues of HTA quality, policy utility, availability of research results, and social interpretation of HTA methods, findings and associated policy recommendations were identified, namely (1) to promote effective communication between HITAP and key stakeholders, (2) to enhance HITAP's image, (3) to ensure validity and reliability of research, (4) to ensure policy relevance of HTA topics and research, and (5) to establish appropriate program management.

Figure 3: HITAP's framework on HTA-policies-practice integration



The five management strategies were translated into program approaches or 'good practice' for administrators and researchers to follow (table I). As in most instances HTA results mean 'gain' or 'loss' in health-related business and industry, health care providers, patients and tax payers, researchers in this field including those working for HITAP should not only be technically proficient and impartial, but also should possess good human skills and a good public image. To ensure effective dialogue between HITAP and the potential users of HTA findings, specific educational and public relations plans were developed and implemented by well-trained staff. Transparency in conducting appraisals of technologies and public health initiatives was a major concern and information on every step of each research project was posted on the website www.hitap.net. In addition, to avoid conflict of interest among research staff and the organization as a whole, a set of regulations was introduced. Research grants, sponsorship to attend technical conferences and training courses, as well as any other direct and indirect benefits from private for profit and health-related corporations were not allowed. Like other research institutes, HITAP staff had to declare their potential conflicts of interest by completing a written form on an annual basis.

Table I: HITAP's approaches to address each of its management strategy

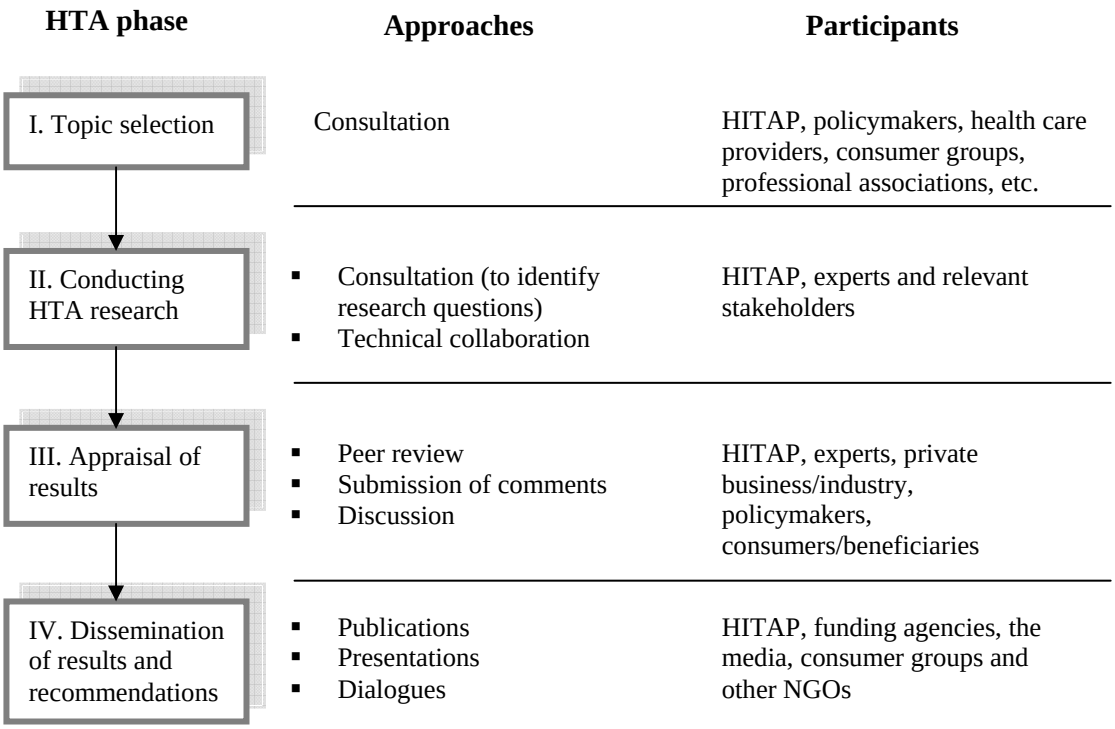
Management strategy	***Program directions***
1. Promote effective communication	▪ Sincere dialogue with all parties including the general public to pursue understanding and collaboration ▪ Tailor-made information and messages to suit particular target groups ▪ Two-way communication
2. Enhance the HITAP image	▪ Transparency: stakeholder participation, avoid conflict of interest ▪ Strengthen technical capacity of researchers ▪ Good manners and discipline of staff ▪ Accountable to granting agencies, while pursuing public interest
3. Ensure validity of research	▪ Strengthen technical capacity of researchers ▪ Exchange experience and knowledge with scientists in Thailand and other countries through various channels
4. Ensure policy-relevance of HTA topics and research	▪ Constructive engagement with policymakers and key stakeholders ▪ Keep an open mind, listen to all partners, keep abreast of the development of social phenomena and take into account policy-related elements
5. Establish appropriate programme management	▪ Institutional lesson learning: monitoring & evaluation, R&D

The development of technical competency among HITAP researchers and research fellows was a crucial component of the program's strategies. Of the various disciplines, economic evaluation was the main approach for HTA, since efficiency in resource use was the common concern of participants in the annual consultations on topic selection[23]. A capacity strengthening scheme, with explicit operational procedures and criteria, was established to provide financial support to research staff who wished to give presentations on their studies in domestic and international fora. Scholarships were available for short-course training and PhD study in Thailand and abroad. Furthermore, HITAP sought collaborations with HTA and academic institutes in developed countries such as the UK National Institute for Clinical Excellence (NICE), the London School of Hygiene and Tropical Medicine and University of East Anglia, the Korean Health Insurance Review Agency (HIRA) and the Center for Drug Evaluation of Taiwan. In the same vein, partnerships were created with domestic institutes including universities, MoPH departments and other research programs including SPICE. Joint working and sharing of information and experience were major objectives of the networks.

HTA management

HITAP's ultimate goal of influencing policies and practice is pursued through the introduction of well-designed approaches at every step of HTA. To develop these strategies, a literature review was conducted to understand the factors determining the use of HTA including CEA in decision making [21]. Lessons were also learned from leading HTA institutes in developed countries, for example NICE, the Canadian Agency for Drugs and Technologies in Health (CADTH), the Australian Medical Service Advisory Committee (MSAC), and the Swedish Council on Technology Assessment in Health Care (SBU)[26]. Based on such knowledge, HTA management guidelines for HITAP staff were developed (figure 4). The underpinning concepts comprised stakeholder participation and transparent processes alongside research of good quality.

Figure 4: HTA management strategies at HITAP



HITAP's internal guidelines on HTA management involve the inclusion of policymakers and other stakeholders such as consumers and insurance beneficiaries, health care providers and corporate business throughout the processes of topic selection, HTA research, appraisals of results, and dissemination of findings and policy recommendations. In the first stage, HITAP calls for proposals on health technologies and programs needing appraisal from MoPH departments, the three public plans, the Subcommittee on NLEM Development, the Royal Colleges, specialist associations, public health NGOs and HITAP funding agencies. A total of 52 and 43 proposals were submitted for assessment in 2007 and 2008, respectively. Representatives of these organizations were invited to a consultation workshop where the background and importance of the proposed topics were discussed [23]. Thereafter, the participants from each organisation prioritized the topics, and ten were selected annually. In the prioritization step, HITAP staff sought to introduce a set of selection criteria such as the magnitude of health problems to be addressed, the financial burden generated by the introduction of the intervention, and the extent to which new knowledge would be generated. However, because of lack of information, explicit criteria were replaced by voting.

In many instances, unexpected issues emerged during the deliberations. For example in a discussion of cochlear implantation in bilateral deafness, psychosocial and ethical issues were raised, resulting in the decision to employ qualitative approaches to understand the undesirable consequences of the implantation procedure, in addition to its cost and clinical effectiveness. When conducting an HTA, clinical specialists and methodologists might be invited to take part as researchers, while some were consulted on particular elements. These experts provided not only data and information, but also helpful advice on real-life practice, its consequences and associated assumptions when empirical evidence from the Thai context was inadequate. During the appraisal of results, HITAP welcomes reviews of its research findings by any interested parties including academics, industry, policymakers, representatives of consumers groups and even individual beneficiaries of health insurance schemes. Written comments and supporting evidence can be submitted to HITAP through various channels including website, e-mails and post. Selected interested parties might be invited to participate in discussions on the reliability and validity of the research. Finally, HTA results and associated policy recommendations are publicized using different approaches to get the messages to particular target populations. These include, for instance, dialogues with policymakers and health advocates, formal presentations at policymaking fora, publications in medical, technical and administration journals, and dissemination of simplified information through public media such as newspapers, radio and television. On some issues, press conferences were organized by HITAP, in collaboration with other bodies, to educate health professionals and the public.

Cost-effectiveness analysis and its contribution to policy

A significant number of HTA topics suggested to HITAP's selection processes in 2007 and 2008 involved CEA of health interventions but only a fraction of these could be undertaken. During these two years a total of 31 research projects were initiated. As of August 2008, 12 projects had been completed, and 13 associated articles published in international journals and 24 in domestic periodicals. As listed in table II, the HTAs covered a wide range of technologies and public health programs, i.e. pharmaceuticals, test kits, medical equipment, procedures, disease control programs and policy to improve medicine access. Economic evaluation including the assessment of costs, cost-effectiveness, cost-utility and budget impact was the major approach, and most were requested by the NLEM Subcommittee. Some of the projects investigated issues of management, performance, feasibility and sociopolitical implications of interventions and technologies. Since these studies' research questions were formulated in consultation with stakeholders, it is apparent that health economic tools alone cannot provide adequate evidence to inform solutions to the country's health problems, and HITAP has tried to fulfill the needs for broader assessments.

According to the literature, exploring the connections between research, policies and actions is difficult since decision making is complex and not always rational [27]. Although recommendations drawn from some HITAP studies were apparently agreed upon and adopted by policymakers, for example those requested by the NLEM Subcommittee, it is unclear to what extent this research has played a role in decisions on including or excluding particular medicines on the List. Key official stakeholders were involved throughout, but public campaigns were not widely implemented. As of August 2008, empirical information from only three projects, the cervical cancer control initiative, marketing strategies of HPV vaccine and costs of alcohol consumption, had targeted the general public.

Table II: Selected HTA projects conducted by HITAP, 2007-2008

Studied interventions	Proposing agencies	Issues of investigation				Strategies to get research to policy and action
		Cost-effectiveness	Budget impact	Management & performance	Socio-political implications	
Cervical cancer control programs, including Pap smear, visual inspection with acetic acid and HPV vaccine	IHPP and HITAP (the economic analysis of HPV vaccine was also requested by the Thai FDA, HSRI and Regional and Provincial Hospitals Association)	Cost-utility	✓	✓	-	▪ Presentation of findings to policymakers, cervical cancer screening program managers, academics, health insurance plans and NGOs ▪ Presentation of the cost-effectiveness analysis at an international conference organized by NGO and academic institutes ▪ Press conference organized by HSRI, IHPP, HISRO and HITAP
HPV vaccine, marketing strategies	HITAP and Regional and Provincial Hospitals Association	-	-	-	✓	Press conference organized by HSRI, IHPP, HISRO and HITAP
Erythropoietin, in anemic cancer patients	NLEM Subcommittee	Cost-utility	✓	-	-	Presentation of findings to the Subcommittee
Insulin analogues, long- and short-acting	NLEM Subcommittee	✓	-	-	-	Presentation of findings to the Subcommittee
HMG co-A reductase inhibitors (statins)	NLEM Subcommittee	✓	✓	-	-	Presentation of findings to the Subcommittee
Proton-emission tomography and computed tomography	Civil Servant Medical Benefit Scheme, HSRI, Dept of Medical Service, Dept of Medical Sciences	Cost only	✓	✓	-	Presentation of findings to policy makers at CSMBS, NHSO , SSS and HISRO
Osteoporosis, screening and treatment in post-menopausal women	NLEM Subcommittee	✓	✓	-	-	Presentation of findings to the Subcommittee
Choline-esterase inhibitors and other medicines for Alzheimer's disease	NLEM Subcommittee	✓	✓	-	-	Presentation of findings to the Subcommittee
Unilateral cochlear implantation for profoundly hearing loss patients	National Health Security Office (NHSO)	✓	-	-	✓	Presentation of findings to policy makers at Health Insurance System Research Office (HISRO)

Studied interventions	Proposing agencies	Issues of investigation				Strategies to get research to policy and action
		Cost-effectiveness	Budget impact	Management & performance	Socio-political implications	
Medicines for treatment of hepatitis B and C	NLEM Subcommittee	✓	✓	-	-	Presentation of findings to the Subcommittee
Bone marrow transplantation and medicines for acute myeloid leukemia	NLEM Subcommittee	✓	✓	-	-	Presentation of findings to the Subcommittee
Provider-initiated voluntary counseling and HIV testing	HITAP	✓	✓	✓	-	Presentation of preliminary results to research teams from 16 district hospitals
Rapid, oral fluid based HIV test	Thai FDA	✓	✓	✓	✓	Presentation of findings to Thai FDA
Policies to reduce alcohol consumption	Thailand Health Promotion Foundation, Dept of Disease Control	-	-	✓	✓	Presentation of findings to Thailand Health Promotion Foundation
Alcohol consumption, socioeconomic and health care costs	HSRI	Cost only	✓	✓	✓	Key findings employed by health advocates in campaigning for the adoption of Alcohol Act 2008
Compulsory licensing for essential medicines	HSRI	Cost savings	✓	-	✓	Presentation of findings to policymakers at MoPH and NHSO
HIV/AIDS prevention interventions	IHPP, World Bank	✓	-	-		Presentation of findings to policymakers at MoPH

Discussion

While there are major hurdles in integrating CEA into health policy decisions in developing countries, Thailand, a lower middle-income country, has made significant progress. This article has outlined the health system context which was conducive to promoting economic evaluation and its policy utility in Thailand. First, as HPSR had been established at national level for some time, supportive elements for conducting research such as information systems and databases, bodies of knowledge in related disciplines, and management capability, existed in the country. Given that many research organizations and funding agencies were already formed into networks, it was feasible to mobilize resources to support health economics. Second, the introduction of the universal health coverage plan raised awareness amongst policymakers and the public about the importance of well-informed resource allocation and rationing. Third, policymakers including managers of health insurance plans recognized the role of health- and pharmacoeconomics as a helpful tool in decision making. Moreover, proof of efficiency including cost-effectiveness information will be required by the Thai FDA in issuing market approval of some health products, according to newly-revised laws on medical devices and medicines control.

However, the experience also highlights the importance of choosing the appropriate host. Two earlier HTA initiatives, involving external collaborations, were both time-limited. The advantages of IHPP as a springboard for HITAP included IHPP's organizational expertise in conducting cost analysis and cost-effectiveness studies. Furthermore, IHPP had long-term experience in the development of research staff and extensive domestic and international networks with other organizations in the field of HPSR that greatly assisted HITAP as a newly established institute.

However, the review of HITAP experience in 2007 and 2008 suggests that the lack of qualified researchers in the field of health economics and related areas was and will be a major impediment to operating and maintaining the organization. Owing to the substantial demand for HTA, especially from the health insurance plans, the initiative was well-resourced in terms of finance. To improve its absorptive capacity, HITAP needs a large number of staff, especially permanent staff, but this will take time. It takes many years for research fellows to build up their capacity, whether through HITAP's apprentice program or through formal study. In addition, bureaucratic rules and regulations are critical barriers to retaining well-trained civil servants on secondment to work as HITAP researchers. Finally, the demands for cost-effectiveness evidence are also mounting in the private sector, since pharmaceutical companies have to provide pharmacoeconomic information when proposing products to be included in the NLEM. As a consequence, it is inevitable that HITAP will compete for staff with the multinational pharmaceutical companies in the country. The brain drain of health economists will also affect universities and other government agencies when the amended versions of the Medical Devices and Medicines Control Act are fully enforced. In this light, Singer's [28] recommendations to expand efforts for capacity development of CEA and modelers in resource-poor settings may not be adequate to counter the obstacles facing the Thai HTA initiative. Promoting a public ethos amongst HITAP staff as an organizational norm, and emphasizing the non financial returns from the socially-beneficial work, will be indispensable to deal with this challenge.

At the program level, HITAP administrators and staff have tried hard to overcome existing obstacles, not only in conducting health economics studies but also in establishing a trustworthy organization with high performance. Efforts during the first two years have resulted in several deliverables including national guidelines for CEA, publications in international peer-reviewed journals, dissemination of research findings to policymakers and practitioners, and technical and policy collaborations. In addition, HITAP researchers frequently provide, on request, technical support including to the MoPH and its divisions.

However, these achievements may not be sustained as the problem of workforce shortage and its consequences emerge fully in the next couple of years. As the institutionalization of HITAP as a national HTA organization has been set as an ultimate goal, all concerned parties should collectively devise a strategic plan with a set timeframe to facilitate HITAP's survival and growth. In doing so, every weakness, threat and potential solution has to be assessed frankly by all partners.

The policies on the adoption, distribution, funding and evaluation of particular types of health interventions as well as the objectives and management of HTA agencies are likely to be context specific. At present HITAP is a semi-autonomous research institute, and the findings of its studies and related recommendations are not legally or administratively binding for any implementing bodies, which is dissimilar to some HTA units embedded in policymaking authorities. While the CADHTA and NICE are mandated to generate evidence on the effectiveness and efficiency of health technologies [29], HITAP covers a wide range of activities, not only conducting HTA studies but also strengthening research and research-policy capacity, which is considered necessary in the Thai context. Nonetheless, in some settings where economic appraisals of medicines and other health products are required by national health insurance offices, the responsible agencies need to provide the pharmaceutical industry with study guidelines and also set up national standards [4]. The HTA guidelines prepared by HITAP aimed to serve wider purposes, beyond the development of reimbursement lists. Concerning the utilization of HTA results, scientific evidence generated by the Australian Pharmaceutical Benefits Advisory Committee and the HIRA in Korea are integrated into health service funding, while in other settings such information targets only health professional practice [4, 30]. In contrast, the cost-effectiveness data and policy recommendations derived from HITAP's studies are expected to be used by all concerned parties in the health system. Regarding human resources, HITAP differs from NICE as it relies on its own research staff, with no contracting relationships with universities such as those of NICE. In part, this is because of the limited number of academic institutes keen on HTA and health economics in Thailand.

Scholars have suggested that the involvement of policymakers, experts, practitioners and other key actors from the very beginning of studies and networking between researchers and policymakers are effective in promoting the research-policy nexus [24, 31]. Like many HTA organizations, HITAP encourages participation of different groups of stakeholders in its research. Although the influence of HITAP's studies for policy decisions is as yet unclear, close collaboration between this initiative and its stakeholders have a crucial role in determining helpful research questions, designs and methodologies. Furthermore, it could be argued that the face-to-face consultations with experts, peripheral health workers and on some occasions, patients and caregivers, all with different backgrounds and experiences, have resulted in the expansion of research at HITAP to areas beyond health economics. During its first two years' experience, this HTA unit has learned that although efficiency is the major concern of policymakers, thorough understanding of the feasibility, social acceptability and other possible consequences of a health policy or intervention should not be neglected.

Acknowledgements

This paper was developed as part of work under the Health Intervention and Technology Assessment Program's Social Mobilization and Public Communication Plan. The program was funded by the Thailand Health Promotion Foundation, Health Systems Research Institute, and the Bureau of Policy and Strategy, Ministry of Public Health, Thailand.

Conflict of Interest

YT is leader of the Health Intervention and Technology Assessment Program, and ST is a researcher of this initiative.

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Title: Using economic evaluation in policy decision making in Asian countries: mission impossible or mission probable?

Running title: Using economic evaluation in Asia

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Abstract

The question of whether it is feasible to use economic evaluation for policy decision making in settings where the method has not been well established is challenging. This paper provides an extensive review of relevant literature and an in-depth analysis aimed at introducing potential applications of economic evaluation and to address the potential barriers that could prohibit the use or diminish the usefulness of economic evaluation in Asian settings. This paper also proposes the probable solutions to overcome these barriers.

Potential uses of economic evaluation in policy development include the development of public reimbursement lists, price negotiation, the development of clinical practice guidelines, and communicating with prescribers. Two types of barriers to using economic evaluation, namely barriers relating to the production of economic evaluation data and decision-context related barriers are identified. For the first sort of barrier, the development of the national guidelines, the development of economic evaluation database, planning and use of economic evaluation in a systematic manner, and prioritization of topics for assessment, are recommended. Furthermore, educating potential users, educating the public, making economic evaluation process transparent and participatory, and incorporating other health preference into decision making framework have been promoted to conquer decision-context related barriers.

It seems practically impossible to adopt other countries' approaches using economic evaluation for priority setting due to several constraints specifically related to the context of each individual health care system. On the other hand, given a better understanding of its resistance, and proper policies and strategies to overcome the barriers applied, it is more than probable that a method with system/ mechanisms specifically designed to fit particular settings will be used.

Keywords: Economic evaluation, Health resource allocation, Policy decision making**,** Health technology assessment, Asia, Latin America

Introduction

The question of whether it is appropriate and feasible to use economic evaluation for policy decision making is a question that is gaining more interest from decision makers in developing countries[1, 2]. This is because of the fact that health care resources in every setting are always constrained whilst unlimited demand is observed. This fact is particularly prominent in most Asian countries which are developing world. This dilemma is challenging and also difficult to answer since there is no country in Asia that is currently adopting economic evaluation as a formal tool to inform health policy decisions. This paper provides an extensive review of relevant literature and an in-depth analysis aiming to address the potential barriers that could prohibit the use or diminish the usefulness of economic evaluation in Asian settings. It also proposes the probable solutions to overcome these barriers.

This paper starts with a description of the potential uses of economic evaluation in policy decision making providing experiences from different countries that have adopted such a method. The barriers of using it follow. These include barriers related to the production of the evidence and barriers associated with decision context. Subsequently, the proposed solutions, along with conclusions drawn, from lessons learnt by many developing settings to overcome these impediments are presented.

Potential applications of economic evaluation in policy decision making

This section outlines potential applications of economic appraisal in developing policies for the rational diffusion and use of health interventions, drawing experience mainly from European countries. Although a range of policy instruments for encouraging the use of this method have been employed, and the precise use may differ from one setting to another, the potential use of economic evaluation can be summarised below.

1. The development of a health benefit package for public reimbursement

This may be the most popular mechanism concerning the use of economic evidence in health policy development. Currently, several health care settings such as Australia, England and Wales, the Netherlands and Sweden have formally adopted this approach[3, 4]. For example, in Australia, since 1993 it has become mandatory for industry to submit economic evidence to the Pharmaceutical Benefit Advisory Committee (PBAC) and Medical Service Advisory Committee (MSAC) if they want their products or services to be in the Pharmaceutical Benefit Scheme or the Medicare Benefit Schedule, both of which are subsidized by the government[4].

2. Price negotiation

Drummond et al[5] illustrated several possible roles of economic evaluation in the pricing of drugs but the obvious one was the case of Australia, where economic evaluation data is usually submitted to the PBAC for decision making regarding the reimbursement. However, a price assumed in the economic evaluation is only considered as the maximum price that the pharmaceutical firm seeks. If the drug demonstrates good value for money the firm may be awarded a price similar to that assumed in economic evaluation. On the other hand, the price may be negotiated downwards based on economic evaluation and other relevant information presented.

3. Development of clinical practice guidelines

In one setting, England and Wales, the National Institute for Health and Clinical Excellence (NICE) considered economic evaluation to be a significant input for developing national

practice guidelines intended to influence health service delivery throughout the country[6]. This situation is similar in Sweden, where members of the central formulary committee perceived that economic evidence was important in establishing clinical practice guidelines, though the members identified difficulties in identifying relevant economic evaluation studies and interpreting their results[7].

4. Communicating with prescribers and other health professionals

It is believed that information gathering from economic evaluation studies is useful for both public health authorities and industry to communicate with prescribers and other relevant health professionals. This is because the data derived from model-based economic evaluation studies is commonly presented in more comprehensive forms than that reported in clinical studies. For example, economic evaluation of osteoporosis drugs report the effectiveness in terms of life-year saved or QALY gained rather than fractures avoided or bone mineral density index changed commonly used in clinical studies[8]. Thus, decision makers and the public may be more understandable regarding the health and economic consequences of health interventions than when using information derived solely from clinical studies.

Barriers to the use of economic evaluation in policy decision making

Although it is believed that economic evaluation is a useful rationing tool, it is far from perfect. This section summarizes key constraints arising from the review of relevant literature related to the use of economic evaluation in policy decision making. The potential limitations can be divided into two categories: (i) barriers related to the production of economic evaluation information; and (ii) decision context related barriers which include a lack of understanding and knowledge of economic evaluation amongst the potential users, social expectation in health care services, politics, as well as institutional, philosophical and ethical considerations.

Barriers related to the production of economic evaluation information

Empirical evidence from South Korea[9] and Thailand[10] revealed limitations of local research capacity. The reviews found that the numbers of economic evaluation studies within

both settings were very low compared to countries such as Australia, Canada and the United Kingdom where economic evaluation has long been accepted for formal use in policy decision making[4]. This is also the case of limited use of economic evaluation in nine Latin American countries[11]. The authors suggested that human resources to perform economic evaluation in Latin America need to be increased to facilitate the conduct and use of the method in policy decisions. In addition, the reviews of economic evaluation publications in Korea and Thailand found that the majority of the studies were vulnerable to bias due to the poor quality of evidence used and deficient reporting features. These will surely hinder the adoption of the method in policy decision making because decision makers prefer to use good quality and locally relevant information rather than international data.

Furthermore, the use of economic evaluation could be prohibited if it is not available at the right time for making decisions[12]. Alongside scarce research capacities, different operational cultures between decision makers and researchers also play a vital role. A qualitative study in Thailand found that decision makers often work in a very tight timeframe; therefore, they are unlikely to be able to wait long for evidence[13]. Decisions often need to be made and action taken when windows of opportunity open. These decisions must be made when they receive strong political support or there is an availability of resources for policy change. However, researchers prefer to work within a longer timeframe because they want to ensure that they conduct a perfect study. Economic evaluation will have a limited impact on policy making if the evidence is available when the intervention has been well established. This is because once an intervention becomes widely acceptable among practitioners restriction of its use will be very difficult.

Given resource constraints, it is necessary to ensure that economic evaluations themselves are also being prioritized and are focusing on interventions that would assist decisions targeting major health problems that could subsequently have a large impact on population health[14]. In spite of this fact, a review of literature in Thailand shows an absence of economic evaluation publications for 15 of the top 20 major health problems of the Thai population[10]. This poor distribution of research results directed towards major health

problems could be explained by the relationship between funding sources and the distribution of economic evaluations by disease category. For example, the majority of studies funded by international non-profit organizations focused merely on diarrhea, malaria and vaccine preventable diseases. These were not major health problems of the country but were of particular interest to those organizations. The problem of studies not focusing on vital health concerns will definitely diminish the usefulness of, economic evaluation in policy decision making and also prevent its use.

Decision context related barriers

These barriers differ from the above ones because they are related closely to the users' knowledge, attitudes, and perceptions regarding the use of economic evaluation. The following paragraphs describe each of these barriers.

- *Lack of understanding and knowledge of economic evaluation among potential users*

There have been concerns about the absence of a clear understanding of economic evaluation among potential users in many settings. Ikegami et al.[15] stated that economic evaluation was a new discipline among health care professionals and that among decision makers in Japan, only a few of them were aware of the technique as their main focus was on biomedical sciences with little or no interest shown in the social and economic aspects of health care. A similar problem also happened in Korea and Thailand where there was limited knowledge and understanding of concepts and applications of economic evaluation among decision makers at both the national and hospital levels. The study in Thailand found that decision makers misused terminology and often failed to distinguish between cost analysis and economic evaluation[13]. Yang et al. observed a large variation of knowledge and understanding of economic evaluation amongst staff at the Health Insurance Review Agency, a health authority responsible for reviewing cost-effectiveness and budget impact data of newly entering drugs for the National Health Insurance Corporation in Korea[16].

- *Social expectation in health care*

It is believed that the public anticipates that health care perform based on the best interest of patients[17]. It is unlikely that the general public would be willing to leave someone to suffer or die without help just because the intervention available to him/her does not present good value for money[18]. This expectation could easily create conflict in making health technology coverage decisions if economic evaluation, which is not concerned only with the individual but also with collective health benefits, is to be used. A survey of decision makers and academics in Thailand found that more than 70% of respondents did not agree to exclude a life-saving intervention (renal dialysis) from the benefit health care benefit package just because it was cost-ineffective[19].

- *Politics*

Resource allocation is inherently political, and it has become evident that politics will inevitably influence the use of economic evaluation for resource allocation. A case in point, Thai decision makers perceived themselves to be the losers if economic evaluation were to be used for making decisions because their power and authority would be transferred to 'scientists'[13]. In addition, health professionals of the Japanese Medical Association (JMA) considered there might be a loss of clinical autonomy if the method was used for healthcare rationing. As a result, the organization's position is clearly opposed to the economic/efficiency concept[15]. In settings where economic evaluation has been used it is clearer that political considerations can play a major role in the coverage process. This is the case in the selection process for the technologies to be appraised by NICE and the development of clinical guidelines for trastuzumab (Herceptin)[20].

- *Social institutional barriers*

Given that social institutions are, in essence, a set of repeated behaviours that are driven by social norms, values and rules, they influence decision makers by encouraging them to choose an option which is most conducive to the norms and values which are linked to their institutional affiliations and the achievement of their organisation's goal(s) or objective(s). In Thailand, institutional factors seem to influence all healthcare stakeholders' use of economic evaluation for making coverage decisions with different directions. The use of economic

evaluation would ideally support the institutional ideology of both hospital directors (to improve efficiency and to control costs) and academics (to use explicit criteria which are accepted by them) but not the institutional modes of conduct and interests of professional institutions and health workers (to maintain their clinical autonomy)[13]. For decision makers at the Ministry of Public Health, the use of economic evaluation alone would not be enough to serve the institutional interests, as there are other strong considerations, not explicitly included in the current methods of economic evaluation, such as total budget size, equity, social solidarity and protection against catastrophic health expenditure, to be considered when they make resource allocation decisions[21].

- *Philosophical and ethical considerations*

It is apparent that utilitarianism, on which economic evaluation is based, is not the only ethical principle that can be used to make a justified health care resource allocation decision. Teerawattananon et al[19] demonstrated that philosophical and ethical considerations are complex and multi-faceted especially when decisions have to be made between providing life-saving/cost-ineffective interventions and non life-saving/cost-effective interventions. Many decision makers, health professionals and academics rejected the Quality Adjusted Life Year (QALY) maximisation principle by supporting life-saving (but cost-ineffective) renal dialysis rather than the more cost-effective laparoscopic cholecystectomy, which would have resulted in more QALYs for the same amount of resources used[22].

Potential solutions to facilitate the use of economic evaluation in policy decision making

Based on the aforementioned barriers described above, this section offers practical guidance to improve the use of economic evaluation in developing settings. Seven recommendations are proposed to overcome these barriers and also help guide users and supporters of economic evaluation towards the most effective use of the method in health care policy and practice.

1. Standardization of economic evaluation methods

In response to the problem of poor quality of economic evaluation available for decision making there is a need for a set of methodological guidelines that will facilitate the use of

standard methods and a high quality of evidence for economic evaluation studies. A uniform methodology will also increase the transparency of studies by allowing readers or users to assess precisely what the analysts have done and whether the method was appropriate[23]. In addition, these guidelines will help to ensure standards that enable comparisons of value for money across health care interventions. This is the case as the difference in a cost-effectiveness ratio is likely to reflect true differences between the interventions being evaluated rather than differences in study methodology[10].

2. Making economic evaluation available at the right time

Two ways to improve the availability of information for decision-making in a timely fashion are suggested. First, it is proposed that economic evaluations should be planned and used in a systematic manner rather than on an ad-hoc basis. It is possible for economic evaluations to be conducted and used as routine information, for example, for the pharmaceuticals listed on the Pharmaceutical Benefit Schedule in Australia[24], or they can be used with a clear and planned timeline for evaluations as is the practice by NICE in England and Wales[25].

Second, the development of an economic evaluation database is also crucial to assist its users to gain better access to reliable information for competing health technologies[26]. Although there are a number of international databases that include economic evaluation literature, they usually include only economic evaluation published in academic journals and in English[27]. Nevertheless, many economic evaluations conducted in several settings, especially in developing countries, have been published in grey literature e.g. theses, dissertations or research reports and using local languages rather than English. This makes it more difficult for the review[26].

3. Prioritization of topics for assessment

It is necessary to ensure that economic evaluations focus on interventions to improve decision-making, even though decisions regarding the prioritization of investment in economic evaluation studies do not necessarily have to be based purely on disease burden. This is the case as to be worthwhile, there have to be available and proven effective interventions,

and/or opportunities for studies to add their values into policy decision and clinical practice. Here the recommendations, modified from Goodman[28] and Sassi[29], state that topics for assessment should be in line with one or more of the following key concerns:

(i) Interventions that will cause a significant increase in health care expenditure, or a significant financial budgetary burden, or a poor return on investments, or interventions that will drain a high level of resources from other effective interventions;

(ii) Interventions likely to offer significant improvement in health and health-related outcomes but have not been widely accepted;

(iii) Interventions likely to have significant adverse effects in terms of health and health-related outcomes, ethical implications, and organisational impact;

(iv) Interventions likely to have a socially undesirable redistribution of resources or health and health-related outcomes.

A comprehensive and systematic approach to prioritising areas for future economic evaluation is needed to ensure that each investment will do the most good for society. It has also been agreed that economic evaluation studies should not focus only on medications or medical procedures but also on health education and other social interventions which could potentially offer greater health gains for a given expense. An example of a Thai national health technology assessment organization using a transparent and systematic method of determining topics for assessment has been described in detail elsewhere[30].

4. Educating decision makers and health professionals

Due to a lack of knowledge and understanding of economic evaluation amongst potential users, i.e. decision makers and health professionals, these users will face challenges in communicating with the public about its use in policy decisions[31]. Economic evaluation is only likely to be used if the users have the capacity to use it and explain it to others. Therefore, it is necessary to educate decision makers and health professionals about the method and for them to become confident in using and interpreting the evidence. There are a number of ways to educate these potential users ranging from formal training e.g. courses in postgraduate studies, short courses or informal training sessions.

5. Educating the public

The need to raise public awareness regarding the fact that health care resources are limited, and that rationing is inevitable, is surely the right thing to do because it is apparent that decision makers and health professionals are sensitive to what is in the interests of the public. It has been found that decision makers are reluctant to support the use of economic evaluation as it is difficult for them to explain to their patients or the public their reasons for not providing care[13].

If the public were well educated about the use of economic evaluation for making policy decisions, they may accept or reject the approach. But at the very least, public awareness will increase public trust in the decision-making process, not decrease it. It is possible that the public might accept the limitations of resources and the use of economic evaluation. It should be noted that the general public have fewer political and institutional barriers than politicians and healthcare policy and decision makers. If the public accept the use of economic evaluation, it will be easier and more legitimate to adopt the method for decision-making.

6. Making economic evaluation processes transparent and participatory

Transparency in conducting economic evaluations is a major concern for all health care stakeholders in every setting. Both public and private payers usually want to be involved in the evaluation process to ensure that the studies are done in a transparent way and achieve a high standard. In order to do this it is recommended that stakeholders are involved from the very beginning of the process, i.e. setting and fine tuning the research questions. While the study is being conducted, stakeholders can also be involved as input experts to inform and verify information used in the study. At the end of the study, it is also necessary that the preliminary results are presented to these stakeholders to validate the findings and collectively formulate policy recommendations[32].

7. Incorporating other health preferences into the decision making framework

The QALY maximization concept of economic evaluation is not the only goal in health care resource allocation[33]. Equity, necessity (severity of disease), social solidarity (helping the poor and vulnerable), and protection against catastrophic expenditure also play a significant role[34]. It is important to emphasise that, in proposing the use of economic evaluation, it is not necessarily the case that other criteria concerning resource allocation must be eliminated in order for priority setting processes to be incorporated and to be used systematically and justly. Economic evaluation can be supplemented with equity, solidarity and economic security criteria to enhance political and public acceptance of a health care package. Therefore, it would be interesting to see an alternative approach for economic evaluation which incorporates other criteria such as equity, necessity, and social solidarity.

Some scholars have suggested that QALYs gained should be weighted for particular preferences such as equity or disease severity[35] whereas others critique the use of a single, universally applicable threshold for health gains[36-38] (e.g. the threshold of 3 times of GDP per capita per DALY gained recommended by the Commission of Macroeconomics and Health[39]). At the moment, Thai and Korean research scholars are investigating the willingness to pay thresholds for a QALY gained, and other relevant resource allocation criteria. They need to pay attention to each specific context and also the suitability for each health care setting[40, 41].

Conclusion

Basing on theory and existent practice, there are potential areas for the use of economic evaluation for policy development including the development of health care reimbursement lists, price negotiation, the development of clinical practice guidelines, and communicating with prescribers. Nevertheless, empirical evidence from Asian and Latin American countries suggests that using economic evaluation for decision making appears to be more complicated than is commonly presumed to be the case. Two types of potential barriers to using economic evaluation, namely barriers relating to the production of economic evaluation data and decision-context related barriers, have been identified in this paper. It is necessary to

distinguish between these two barriers when the feasibility of using economic evaluation is considered. To achieve a substantial increase in the impact of economic evaluation in decision-making, different strategies are needed to overcome the barriers.

For the first kind of barriers, four strategies, including the development of the national guidelines for conducting economic evaluation, the development of an economic evaluation database, the planning and use of economic evaluation in a systematic manner, and the prioritization of topics for assessment, have been proposed. These strategies will ensure the quantity, quality, and target (policy relevance) of economic evaluation. Educating decision makers and health professionals, educating the public, making the economic evaluation process transparent and participatory, and incorporating other health preferences into the decision making framework are among the strategies promoted to conquer decision-context related barriers.

It is noteworthy that the barriers and solutions addressed in this paper may not be completely generalisable across health care settings due to differences in health care infrastructures, human resource capacities, institutions and incentives as well as social, political, and ethical factors inherent in each health care system. However, this paper provides a wider and more comprehensive view to look at potential barriers and solutions that can be applied to assess the feasibility and facilitate the use of economic evaluation or other resource allocation criteria in other settings. It also raises concerns regarding the importance of developing health care infrastructures and human resources for evidence-based policy decision making.

Lastly, it seems practically impossible to adopt economic evaluation using either Australian or European styles for setting priority in the likes of Thailand and other Asian countries because there are several constraints specifically related to the context of each individual health care system. For example, the ideological and normative values of society concerning health resource allocation may greatly differ between western and oriental settings. Resources and infrastructures for conducting economic evaluation are more limited in Asia compared to western countries where health economic discipline has long been established. As a

consequence, each health care setting needs to initiate their own system/mechanisms for the use of economic evidence for prioritising health resources. Given a better understanding of the resistance to the use of economic evaluation, and proper policies and strategies to improve the feasibility and acceptance of using economic evaluation, it is more than probable that economic evaluation will be used for guiding policy decisions instead of the imprecise, inconsistent, and unaccountable practice of health care prioritisation which still exists in many health care systems in Asia.

Acknowledgement

This paper was developed as part of work under the Health Intervention and Technology Assessment Program (HITAP). We are grateful for the joint financial support to HITAP by the Thai Health Promotion Foundation, the Health System Research Institute, the Bureau of Health Policy and Strategy, the Ministry of Public Health, and the Thai Health-Global Link Initiative Project (TGLIP).

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1) **Title:** The Current Capacity and Future Development of Economic Evaluation for Policy Decision Making: A Survey among Researchers and Decision Makers in Thailand

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4) **Source of financial support**: Health Intervention and Technology Assessment Program, Thai Health Promotion Foundation, Health System Research Institute, and Bureau of Policy and Strategy, Ministry of Public Health.

5) **Keywords**: economic evaluation, survey, capacity, pharmacoeconomics, Thailand

6) **Running title:** Survey of economic evaluation in Thailand

ABSTRACT

Objective: This study aims to explore the knowledge, experience, and attitudes towards economic evaluation (EE) among decision makers and researchers in Thailand.

Methods: Researchers were purposively selected from Thai academics, public and private research organizations related to EE. Decision makers at provincial level were purposively selected from the members of the Management Committees of Provincial Health Offices and those at hospital level were randomly selected from members of the public and private hospital formulary drug committees throughout Thailand. The self-administered postal questionnaires including demographic characteristics, their knowledge and experience, training needs, importance, usefulness, and barriers in relation to EE were sent in April 2007. Univariate and bivariate analyses were applied.

Results: Of the total 2,575 questionnaires distributed, 768 (23.2% response rate) were completed and sent back. More decision makers (70.6%) had never had EE training compared to researchers (50.0%). Both roles indicated that value for money was one of the top five most important issues to consider for health technology adoption and EE evidence was the most useful information when making decisions on national drug formulary. The main barriers for researchers were the lack of EE methodological skills, critical mass of researchers, and data. The main barriers for decision makers were the unavailability of ceiling threshold and EE studies and the potential industry sponsorship bias in EE studies.

Conclusions: Findings from this study contribute to the short and long term plans for research capacity building and strengthening in EE of healthcare.

INTRODUCTION

Due to the growing health needs of an aging population and the advancement in health technology especially pharmaceuticals, healthcare costs have been rapidly increasing in the Thai health care system. Rising health expenditure has caused concerns amongst policy makers and practitioners to make the most efficient use of scarce healthcare resources. As a consequence, economic evaluation (EE) or pharmacoeconomic assessment defined as a "policy research" which identifies, measures, and compares the costs and consequences of medical technology [1] was introduced to guide health care resource allocation decisions [2, 3]. Recently, the first national guidelines for conducting EE were endorsed in March 2008 by the Subcommittee for development of the National List of Essential Drugs (NLED), which is the only pharmaceutical reimbursement list in Thailand, and referred to by all major public health planners. In addition, the revision of the 2008 NLED included pharmacoeconomic evidence which was officially incorporated in the drug selection process for the first time in Thai history [4].

Because EE is a relatively new discipline in Thailand, there was wider concern over the feasibility of using EE for decision making especially at the local or hospital level [5]. Teerawattananon et al extensively documented the potentials and barriers of using EE for informing health care coverage decisions at the national level; however, there was no study examining these challenges at the sub-national level [6]. Ross proposed that the use of EE by decision makers is influenced by three main factors [7]. The first is that the users have knowledge of the method; the second is whether they perceive any overall benefit in using it, and the third is if they perceive the relative importance of marginal efficiency compared to other objectives as a factor influencing resource allocation decisions in their particular health care system. In addition, it is also recognised that the potential constraints to the use of EE is not only about the lack of understanding and support amongst the potential users but also the barriers related to the production of EE information. Expanding local research capacity is essential because decision makers prefer to use locally relevant information over international data.

This present study aims to explore decision makers' knowledge, experience, and attitudes toward the use of EE at the sub-national level as well as to assess the current human capacity and gaps in EE

amongst those decision makers and Thai scholars. This study focused on two groups of decision makers. The first is the members of the Management Committee (MC) of each Provincial Health Office (PHO), who are responsible for capital investment at health centres, community hospitals and provincial hospitals, supporting vertical public health programmes and human resource development at provincial level. The MC normally consists of head and deputies of PHO, heads of PHO's departments, heads of District Health Office, and directors of community and provincial hospitals. The second group is the members of the Hospital Drug Formulary Committees (HDFC), who are responsible for selection of drugs purchased and used in each hospital. The HDFC includes heads of hospital pharmacists and representatives from each group of physicians e.g. surgeons, paediatricians, internists, obstetricians and ophthalmologists. Lastly, scholars include university lecturers and researchers at both public and private institutes who search for or provide EE evidence and educate the public.

Because there is an increasing interest to use economic evidence for resource allocation, a better understanding of the decision makers' and scholars' knowledge, attitude and value towards the use of EE will provide useful evidence that can be employed for the development of human resources and relevant health system infrastructure in both short- and long-term periods. Lessons learnt from this study can also be useful not only for the Thai health care system but also in other developing settings where a health economic discipline has not been well established.

METHODS

Data was collected through a questionnaire survey conducted by the authors between April and December 2007. The samples consisted of members of the MC of all 75 PHOs and members of the HDFC of 100 hospitals which were randomly selected from a total of 1,044 community, provincial and regional hospitals throughout Thailand. The survey also included scholars from 29 academic institutions i.e., Faculties of Medicine, Pharmacy, Public Health, and Economics where the authors are expected to have an expertise of health economics or pharmacoeconomcis, and 16 relevant research units in pharmaceutical companies.

Self-administered postal questionnaires were sent to aforementioned samples. The questionnaire consisted of four parts. The first part focused on socio-demographic characteristics of survey respondents and their current organizational roles. The second part contained eight questions relating to respondents' knowledge and experience on EE, and attitudes towards the use of EE in making health resource allocation decisions. For example, how important is the criteria of "value for money" when making decision on healthcare resource allocation? or how useful is EE information when developing national drug formulary? The third part concentrated on the potential barriers in conducting EE studies or applying economic evaluation into practice or policy decision. In addition, given the information on the disease burden in terms of Disability Adjusted Life Years (DALYs) loss among the Thai population, the last part was to request the respondents to prioritise the top five health problems that EE could play a significant role in identifying interventions to mitigate their impact. After the respondents prioritized top five diseases and interventions based on the list of disease burden in Thailand and interventions, a scale from 1 to 5 where 5 corresponded to "the first rank" and 1 to "the fifth rank" was assigned to calculate the mean score.

Due to the variations in the number of members in each the MC and HDFC, the number of postal questionnaires was based on hospital types e.g., community or private (5 copies), regional (10 copies), and specialist or general (20 copies). Pre-stamp and returned address was printed at the back of the questionnaire to facilitate the return of the completed questionnaire. A total of 2,575 questionnaires with a letter explaining the purpose of the study were mailed in April 2007. Approximately one month after mailing, telephone calls were made to questionnaire respondents to verify whether they received the questionnaires and to stimulate non-respondents.

Data were analyzed comparing knowledge, experience, attitude, and value of using economic evaluation to inform decision making process of the two groups of respondents i.e. decision makers at sub-national level and researchers. Univariate and bivariate statistical analyses were applied. The statistical differences of findings between the two groups were detected using t-test or chi-square test, where appropriate.

RESULTS

Response rate and demographic characteristics of respondents

Of the total 2,575 questionnaires distributed, 768 (23.2% response rate) were completed and sent back. Table 1 shows the response rate by type of respondents. The highest response rate was obtained from researchers in the private sector followed by hospital formulary committee members and provincial public health officers. It was noted that researchers in the government sector provided the lowest response rate. An average age of respondents was 37 year-old with no significant difference between decision makers and researchers. Females dominated in both groups (70% for researchers and 63% for decision makers). Researchers had a higher proportion of completing master (68% vs. 34%) and doctoral degrees (23% vs. 5%) compared to decision makers.

<Table 1>

Knowledge, experience and training need related to EE

The survey illustrates limited knowledge and experience in the production and use of EE information among respondents. Figure 1 illustrates that majority of researchers and decision makers were not familiar with technical terms commonly used in health economic evaluation e.g. incremental cost-effectiveness ratio (ICER), discounting, and sensitivity analysis. Meanwhile, they were more familiar with the general terms used in costing study (i.e., unit cost, direct and indirect costs). This may be partly explained by the fact that 50% of researchers and 71% of decision makers had not been trained in EE. For those trained in EE, short-course training and taught courses in master or doctoral studies were among the major sources of services provided for both groups. In addition, it was found that one-fifth of researchers and only 7% of decision makers had ever been involved in conducting EE studies and only a few of them (10% for researchers and 4% for decision makers) used to publish EE papers in domestic or international academic journals.

<Figure 1>

Table 2 demonstrates the need of EE training by type of respondents. More than 80% of both researchers and decision makers showed their interests in short-course training and on-the-job training, respectively. Decision makers were significantly more interested in short-course EE training and master study, whereas researchers preferred to take part in long-term research fellowship programs related to EE in health care.

<Table 2>

Relative importance and usefulness of EE information in policy decision making

Both researchers and decision makers similarly indicated that safety, efficacy/effectiveness, quality of life, value for money, and disease severity were the most important issues to be considered when they need to make policy decisions regarding the introduction of new health technology (Figure 2). On the other hand, they admitted that political pressure, availability of alternatives, and price of technology were among the least important aspects of technology adoption.

<Figure 2>

Furthermore, the majority of researchers and decision makers shared common agreement that EE information was useful for development of national drug formulary, following with development of hospital drug formulary, clinical practice guidelines, and communicating with prescribers (Figure 3).

<Figure 3>

Barriers for the production and use of EE in policy and practice in Thailand

Researchers indicated the main barriers related to the production of economic evidence for assisting policy decisions in Thailand included a lack of EE methodological skills among researchers, inadequate human resources, lack of local information on costs and effectiveness of interventions, no

clear government policy regarding the use of EE in policy decisions, inadequate financial support from grantors, lack of time, and lack of support from their own organizations (Figure 4).

<Figure 4>

Regarding the use of EE in policy decisions, decision makers revealed that the main obstacles were the lack of an explicit ceiling threshold that the society is willing to pay for a QALY or DALY gained, followed with the lack of EE studies/information on particular topics that are of interest by decision makers, awareness of a potential bias of the study due to industry sponsorship, a lack of confidence in interpreting and using economic evaluation results, no clear government policy on the use of economic evaluation, disagreement with efficiency criteria for healthcare resource allocation, and political barriers (Figure 5).

<Figure 5>

Prioritization of diseases and interventions for conducting EE in Thailand

Table 5 shows the list of 14 leading causes of diseases burden and the ranks of topics for economic assessment assigned by researchers and decision makers in Thailand. It can be seen that both groups of respondents commonly agree that economic evaluation studies should focus on HIV/AIDS, traffic accident, diabetes and homicide which were also the top four health problems in terms of DALY loss in Thailand. Apart from that, there was no common agreement on the topics for economic assessment between disease burden and respondents' perception.

<Table 3>

Moreover, regarding the type of interventions for performing economic evaluation, both researchers and decision makers similarly prioritized that the first, third and fifth rank were prevention, screening for secondary prevention, and curative by surgery, respectively. However, at the second rank, decision makers considered social/community intervention, whereas researchers selected screening

for secondary prevention which decision makers ranked at the fourth (Table 3). More than 50% of researchers (58.6%) and decision makers (51.8%) revealed that they ranked in this fashion because those diseases were a healthcare burden in Thailand. Furthermore, they had personal interests in those diseases and interventions and noticed that the cost-ineffective interventions in those diseases or interventions tended to be overused whereas the cost-effective interventions seemed to be underused.

DISCUSSION

This present study is the first to investigate capacity, attitude and perception of both researchers and decision makers concerning the use of EE for policy decision making as well as the prioritization criteria used for selecting topics for economic assessment in developing settings. The results obtained from this study suggested that both researchers and decision makers had very positive attitudes towards the use of EE. In addition to safety, efficacy/effectiveness and quality of life, cost-effectiveness information resulting from EE was considered as one of the most important criteria for making decisions on health technology adoption in Thailand. They suggested that EE information was the most useful for the development of the national drug formulary.

Although both groups of respondents recognized the usefulness of EE, only one-third had ever used EE information in their current work. These findings were similar to the results obtained from the European Network on Methodology and Application of Economic Evaluation Techniques (EUROMET)'s study, which demonstrated that although two-thirds of decision makers from 9 European countries (i.e., Finland, France, Germany, Norway, Portugal, Spain, Sweden, The Netherlands and the UK) appreciated the usefulness of EE information, only a third of them had ever really used it in real practice [7]. These results concurred with the previous studies in the United Kingdom [8-10]. It was concluded that an increase in the use of economic evaluation was due to the reforms of the National Health Service in the UK. However, decision makers still needed help interpreting the methodology and results of economic evaluation as well as increasing their knowledge and understanding in economic evaluation.

Furthermore, this study revealed a number of potential barriers for the production of economic evaluation from a researchers' viewpoint as well as the potential barriers related to the use of economic evaluation by decision makers. These barriers related to the production of EE information include a lack of knowledge and skills, an inadequate number of research staff, a lack of local information, a lack of incentives and support for conducting EE studies. Decision makers revealed that the lack of a ceiling threshold for the Thai health care setting, a lack of EE information, the potential bias of EE studies due to industry sponsorship and a lack of knowledge and skills to interpret EE information were among the major resistance factors concerning the use of EE in policy decision making. Similarly, Drummond et al suggested that the major obstacles for decision makers were the concerns over the validity of economic studies, leading to a lack of confidence in applying it into policy and the lack of knowledge and understanding in economic evaluation [8].

The lack of EE training could be a major explanation for the knowledge gap in EE. Of all 58 respondents working as researchers only, about 50% had never experienced any EE training, whereas approximately 71% of respondents with the role of decision makers had never been trained in EE. Likewise, most decision makers in European counties (i.e., Finland, France, Germany, Norway, Portugal, Spain, Sweden, The Netherlands and the UK) also had very limited knowledge of cost-benefit analysis, cost-effectiveness analysis, or cost-utility analysis and only one-third had attended health economics training [10, 11]. Similar to decision makers in Australia, 26% of them accepted that they lacked EE knowledge and expertise in all areas as well as EE training, and this represented a significant barrier to the use of EE [6]. It should be noted that the majority of researchers and decision makers showed their interest in short-course training, on-the-job training, long-distant curriculum, and short-tem research fellowship, respectively.

Furthermore, the second barrier was the lack of EE studies in Thailand especially for urgent policy making. When looking at the publication experience of all respondents in this study, there were only 10% of researchers and 4% of decision makers who had ever published EE studies. Similarly, Teerawattananon's study showed that only 41 EE publications on the international databases during 1982-2005 were found. Moreover, of all existing publications, there is a lack of publications on 15 of the top 20 major health problems in Thailand due to the poor distribution of research funding on areas

of major health problems [12]. Similar results were also found in Australia [6]. It was indicated that 47% of Australian decision makers agreed that there was no appropriate economic evaluation study available when they had to make policy decision in a short time period. In this study, the respondents prioritized top five diseases that needed to be conducted through EE studies (i.e., AIDS, diabetes, homicide, traffic accident, and COPD/anemia), as those diseases corresponded to the list of disease burden in Thailand. Interestingly enough, both researchers and decision makers agreed that the first rank of intervention needed to be performed through EE was individual prevention. It is fascinating that both parties realized the importance of EE information related to prevention intervention instead of curative intervention by treatment, the most common intervention usually conducted in EE studies. Based on the viewpoint of researchers, the second rank was curative intervention by treatment, whereas decision makers indicated that it was social/community intervention. Because most decision makers in this study are responsible for managing healthcare resource allocation at the provincial and hospital levels particularly in rural areas, they might comprehend the significance of social/community interventions to a greater extent than researchers However, to overcome this barrier, EE research topic prioritization should be established in a comprehensive and systematic way in Thailand.

Decision makers strongly indicated that the lack of a ceiling threshold was the potential barrier diminishing the use of EE information for policy decision making due to no reliable and appropriate cut-off point for cost-effectiveness consideration of health technologies in Thailand. Therefore, there is a need to assess societal value for a ceiling threshold that the Thai general public is willing to invest in health for a unit of health gain. In addition, both researchers and decision makers strongly agreed that it was difficult to access EE studies due to the unavailability of EE studies and an electronic search engine database for collecting EE studies in Thailand. Having access to reliable EE information for competing health technology helps guarantee availability and accessibility of EE findings. Although some EE studies were available in Thailand, the lack of high-quality EE studies could limit the application of these EE studies. Decision makers might hesitate to adopt the EE findings and use for policy decision making, since they might have concerns on not only the quality of EE studies, but also the potential industry sponsorship bias of EE studies. This was confirmed by Teerawattananon's study that serious attention needed to be given to the quality of reporting and the use of information in the analyses [12]. These problems could be solved by setting up standard

national guidelines for conducting EE in order to ensure that accurate, reliable and comparable HTA evidence will be available for policy decision makers and health professionals in making resource allocation decisions in health care.

It is important to address the limitations of the study. First, the response rate in this study might be underestimated since it was calculated by the proportion of the number of returned questionnaires and the number of sent questionnaires. Since the actual number of respondents in each setting was unknown, the number of sent questionnaires was assumed and might be overestimated, Second, due to a relatively low response rate to the survey, the results from this study may not represent what all decision makers and researchers in Thailand thought about EE. It is likely that more decision makers and researchers who are familiar to EE, responded to the survey than those unfamiliar or disagree with the method. Third, the responses do not always reflect actual practice. It is difficult to observe those who informed that they used EE in decision making, or are willing to take EE training if they have the chance, will do so in real practice.

At the moment, partly as a consequence of this study, Health Intervention and Technology Assessment Program (HITAP), a non-profit organization financially supported by public organizations responsible for appraising health technologies and interventions in Thailand has initiated three main strategies to overcome these barriers. The first strategy is related to the development of fundamental systems related to EE for both researchers and decision makers. These include national standard methodological guidelines focusing on EE, an electronic search engine database on EE studies related to the Thai context, and quantifying the ceiling threshold that Thai households are willing to invest for a unit of QALY, The guidelines will support the researchers to produce high-quality EE studies while the database will assist decision makers to easily assess and use the EE information given the ceiling threshold for health care investment in Thailand. The second HITAP strategy is to strengthen human capacity towards EE by providing both basic and advanced EE training annually for interested researchers and decision makers from both public and private organizations. This may help researchers and decision makers improve their EE knowledge as well as ultimately build human capacity towards EE in Thailand in the future. The third HITAP strategy is to conduct EE research studies of health technologies or interventions which address the major health problems both long-

and short-term periods in Thailand. A comprehensive and systematic method for research topic prioritization was established with participation from all stakeholders including representatives from all departments in the Ministry of Public Health, third-party payers, hospital directors and health professional bodies. The research prioritization is performed in an annual basis and its detail were reported elsewhere [13]. This process helps prioritize the healthcare problems necessary to be solved by using EE evidence and make the best use of scarce healthcare resources. By incorporating these three HITAP strategies altogether, it leads to the short and long term plans for research and human capacity building and strengthening in EE of healthcare in Thailand.

CONCLUSIONS

In Thailand, even though EE is perceived as essential information for health policy decision making, researchers and decision makers still lack EE knowledge and skills. Findings from this study contribute to the short- and long-term plans for research capacity building and strengthening in EE of healthcare as well as the development of the fundamental system related to EE. Regular monitoring of progress achieved in human, institutional research capacity, and fundamental system related to EE is recommended.

ACKNOWLEDGEMENTS

This study would not have been accomplished without the technical support, challenging criticism and encouragement of many colleagues at Health Intervention and Technology Assessment Program (HITAP) and International Public Policy Program (IHPP). We would like to acknowledge our funding support through HITAP from the Thai Health Foundation, the National Health System Research Institute (HSRI) and the Bureau of Health Policy and Strategy, Ministry of Public Health. The authors wish to acknowledge all individuals who contributed their time to answer and return the questionnaires. In addition, we would like to give particular thanks to Youdtana Orrawattanakul, Nuttawut Pimsawan, and Wantanee Kulpeng for their contribution on data management.

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Table 1. Survey response rate by type of respondents

Types of respondents	Total questionnaire sent (N)	Returned questionnaire (N)	Response rate (%)
Provincial public health officers	750	174	23.2
Hospital formulary committee members	1,000	350	35.0
University lecturers in academic institutions	1,050	204	19.4
Researchers in government sector	85	11	12.9
Researchers in private sector	215	121	56.3
Total	2,575	768	29.8

Table 2. EE training need by type of respondents

Type of EE Training	N (%)		
	Researchers (N=60)	Decision Makers (N=607)	P-value
Short-course training (3-7 days)	49 (81.7)	551 (90.8)	0.025*
Short-term research fellowship (6-12 months)	24 (43.6)	186 (41.8)	0.794
Long-term research fellowship (1-3 years)	18 (34.6)	88 (22.0)	0.042*
Master study	8 (15.7)	129 (31.6)	0.019*
Doctoral study	9 (17.7)	63 (15.8)	0.745
Long-distant curriculum	22 (41.5)	236 (52.3)	0.136
On-the-job training	39 (68.4)	343 (69.4)	0.875

*P-value < 0.05

Table 3. Ranking scores of diseases and interventions for conducting EE studies in Thailand

Diseases and interventions	Mean Score (SD) (Rank #1=5 to Rank#5=1)				
	Researchers (N=54)	Rank	Decision Makers (N=506)	Rank	P-value
*Rank of diseases based on disease burden***					
1. Acquired immune deficiency syndrome (AIDS)	4.33 (1.17)	1	4.31 (1.25)	1	0.906
2. Traffic accident	3.53 (1.46)	4	3.81 (1.41)	2	0.258
3. Diabetes	3.82 (1.48)	2	3.59 (1.39)	3	0.297
4. Homicide	3.57 (1.22)	3	3.57 (1.32)	4	0.963
5. Suicide	2.42 (1.39)	9	2.35 (1.23)	9	0.818
6. Other infection	2.76 (1.25)	8	2.63 (1.24)	6	0.523
7. Stroke	2.85 (1.31)	6	2.57 (1.19)	7	0.309
8. Ischemic heart diseases (IHD)	2.00 (1.00)	11	2.23 (1.26)	10	0.561
9. Osteoarthritis	-	13	-	13	-
10. Liver cancer	1.67 (0.58)	12	2.23 (1.11)	12	0.393
11. COPD	3.50 (1.73)	5	2.39 (1.38)	8	0.134
12. Depression	2.80 (1.30)	7	2.16 (1.14)	11	0.246
13. Anemia	2.20 (1.40)	10	2.83 (1.41)	5	0.177
14. Deaf	-	13	-	13	-
Interventions					
Prevention	3.84 (1.19)	1	4.12 (1.19)	1	0.088
Screening for secondary prevention	3.21 (1.21)	3	3.10 (1.09)	3	0.483
Curative (Treatment)	3.65 (1.32)	2	2.98 (1.38	4	0.001*
Curative (Surgery)	2.00 (1.10)	5	1.94 (1.10)	5	0.740
Social/Community	2.67 (1.29)	4	3.23 (1.30)	2	0.003*
Rehabilitation	1.92 (1.23)	6	1.77 (0.92)	6	0.535

*P-value < 0.05

**Source: Burden of disease and injuries in Thailand, International Health Policy Program, Ministry of Public Health, 2004

Figure 1. Levels of understanding in technical terms commonly used in EE by type of respondents

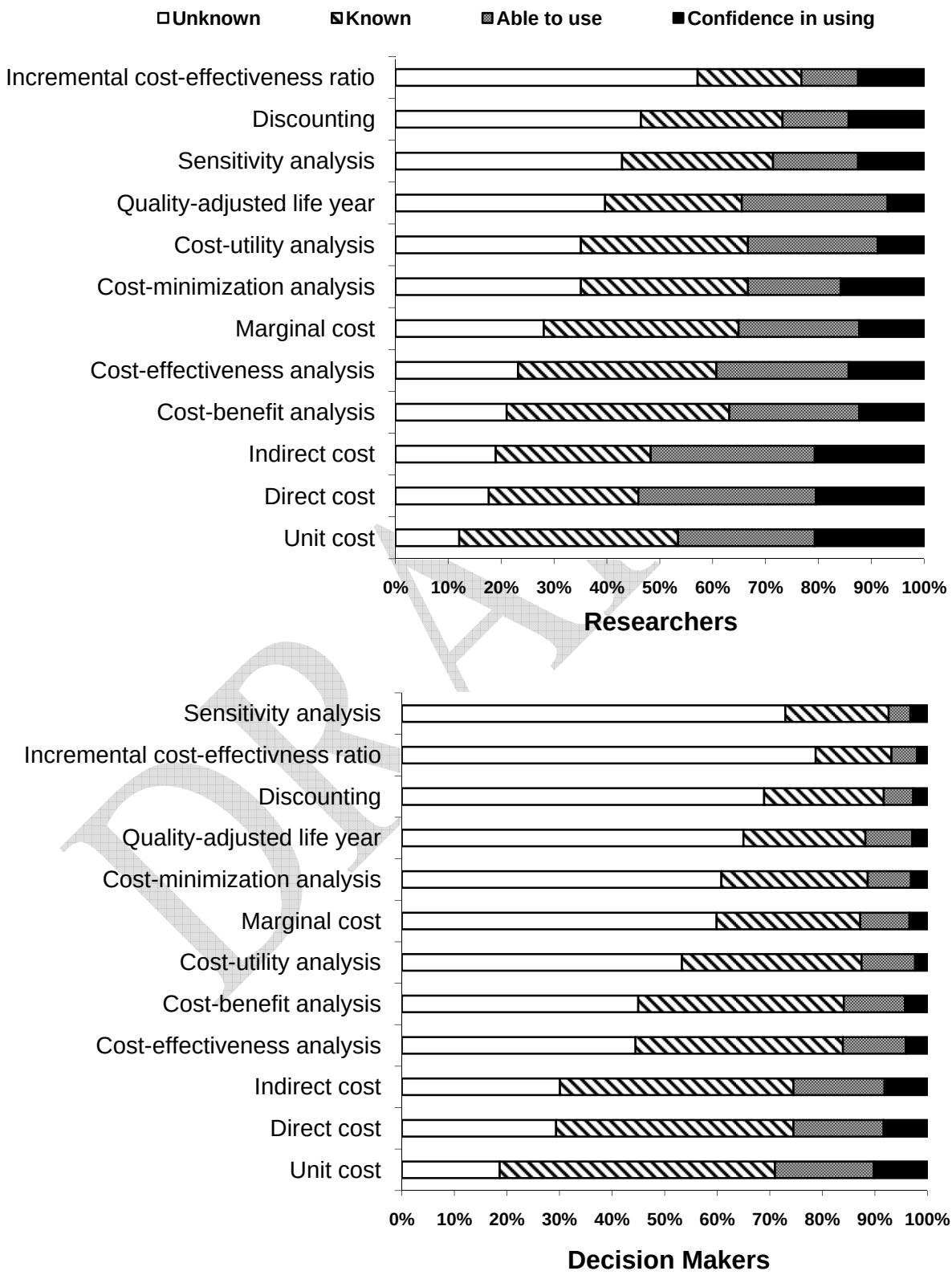


Figure 2. Relative importance of criteria for healthcare resource allocation perceived by researchers and decision makers

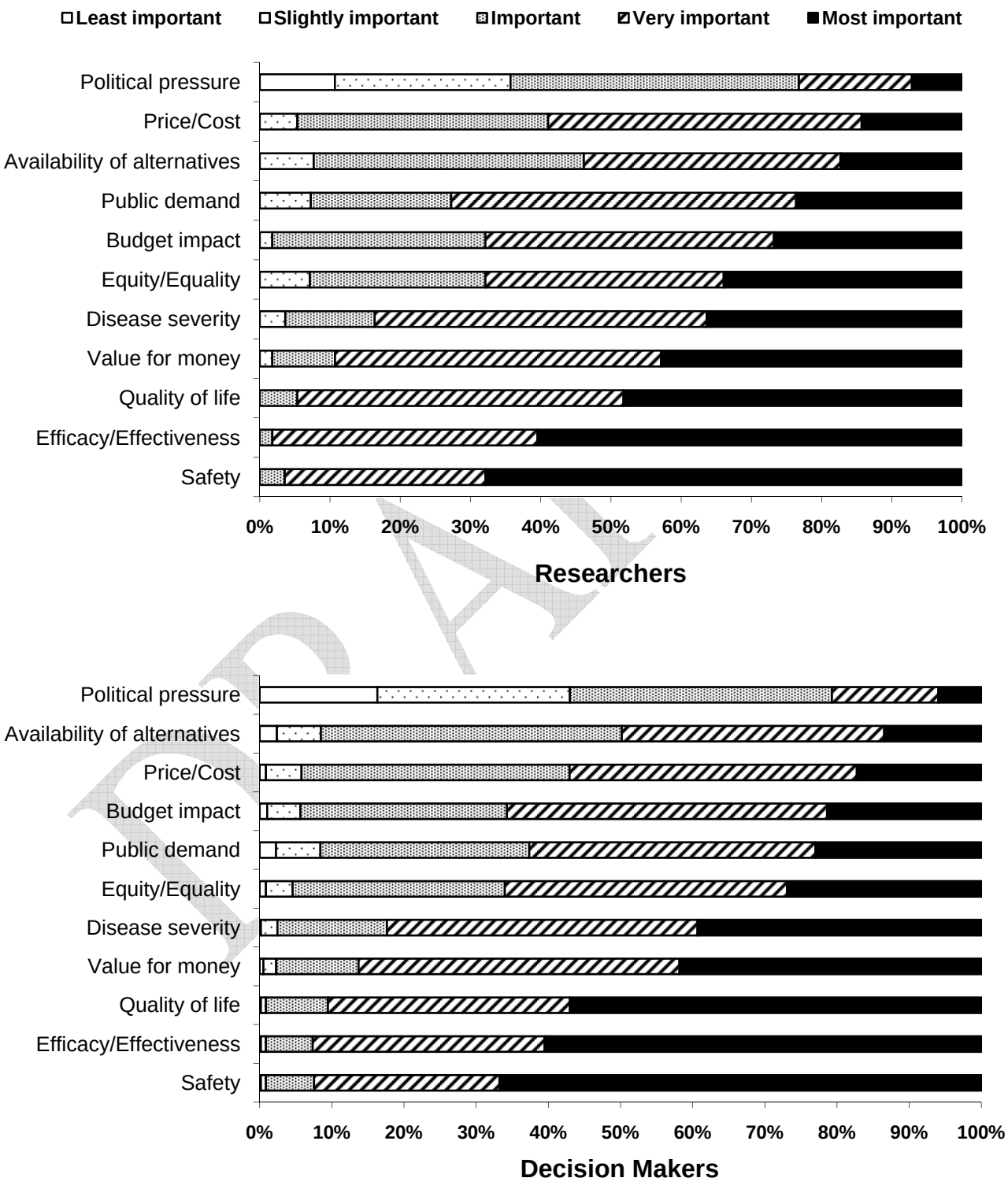
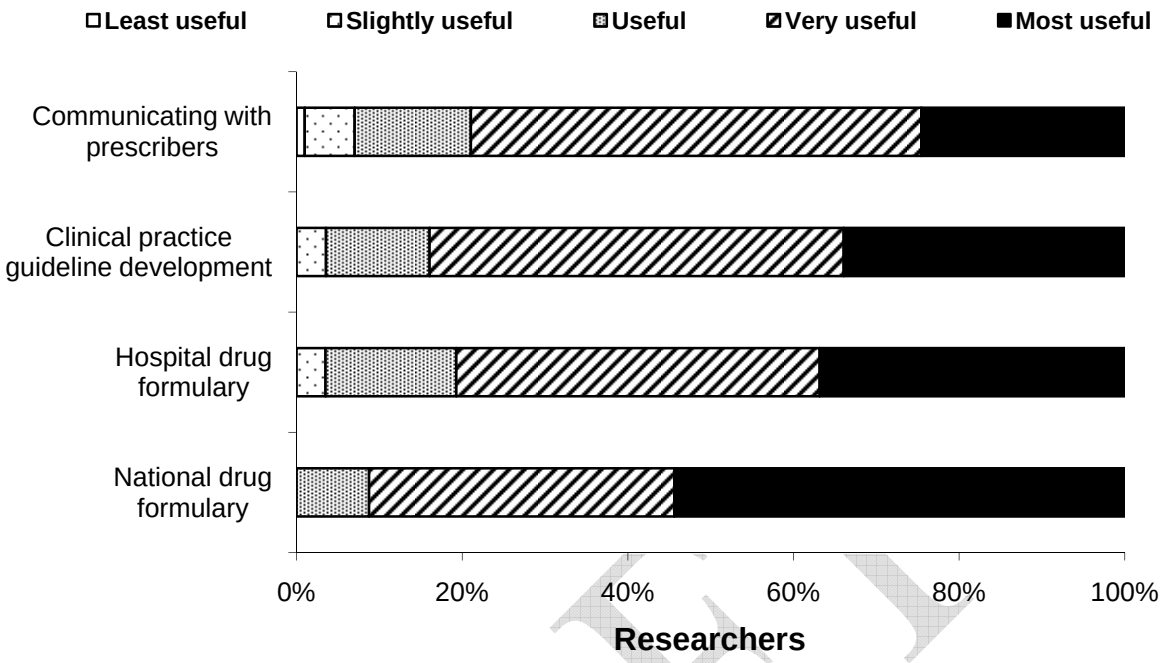


Figure 3. Usefulness of EE information for policy decision making



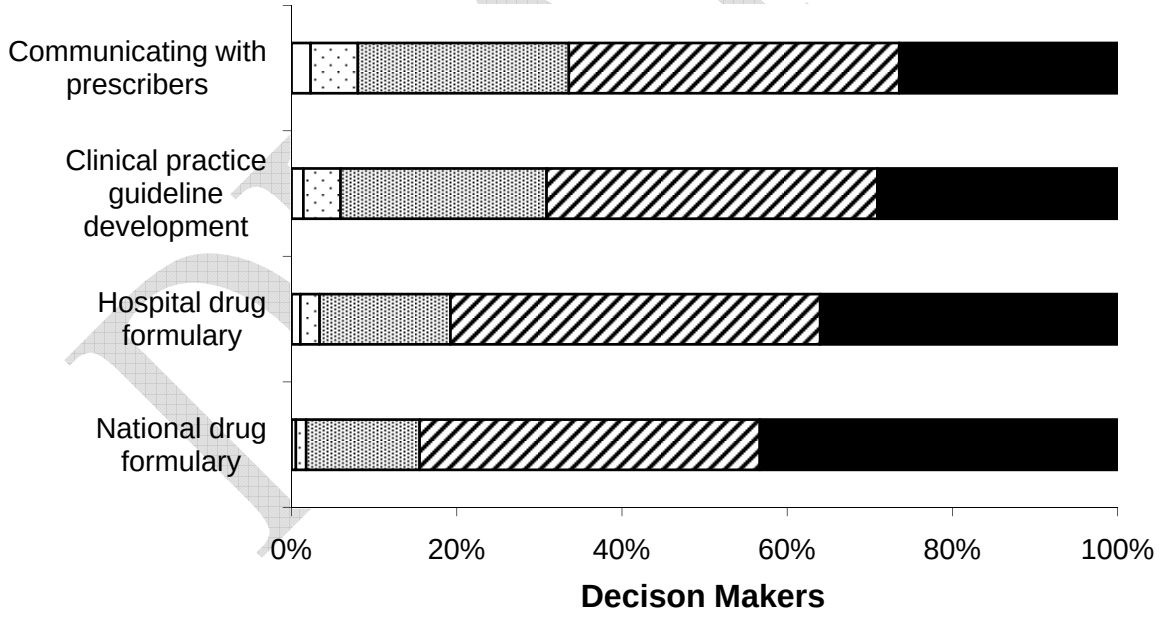


Figure 4. Barriers related to the production of EE studies perceived by researchers

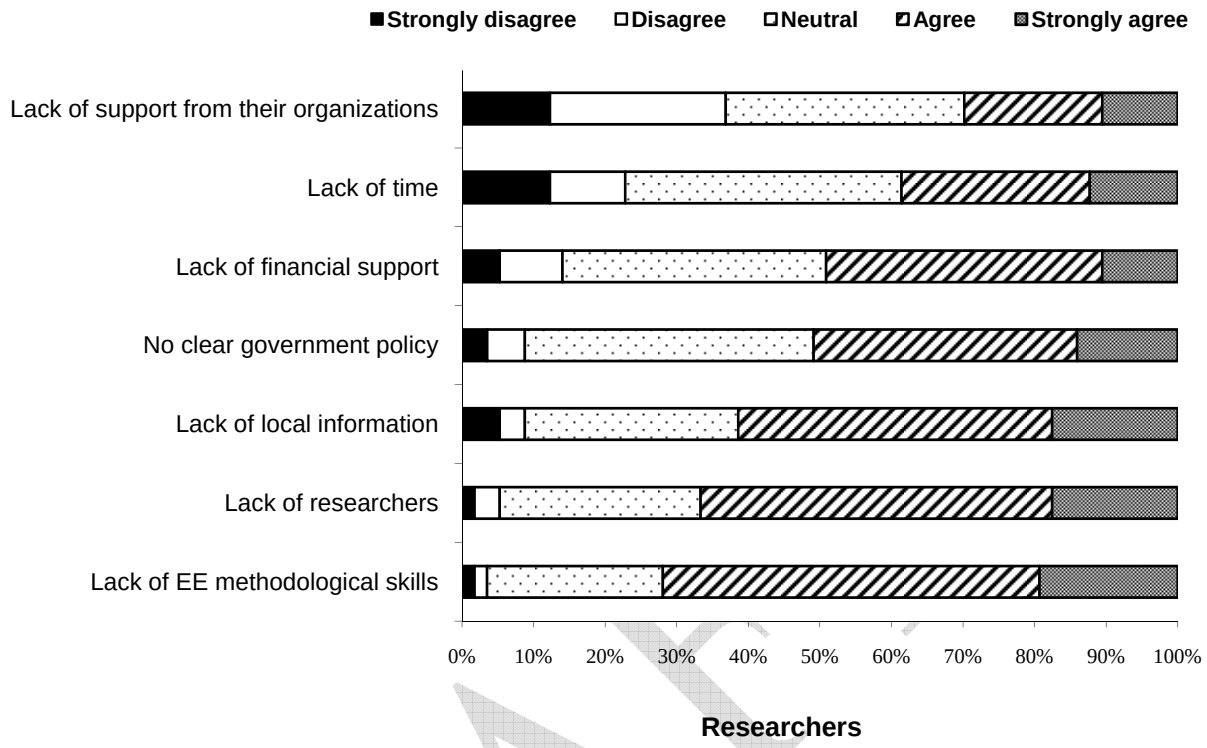
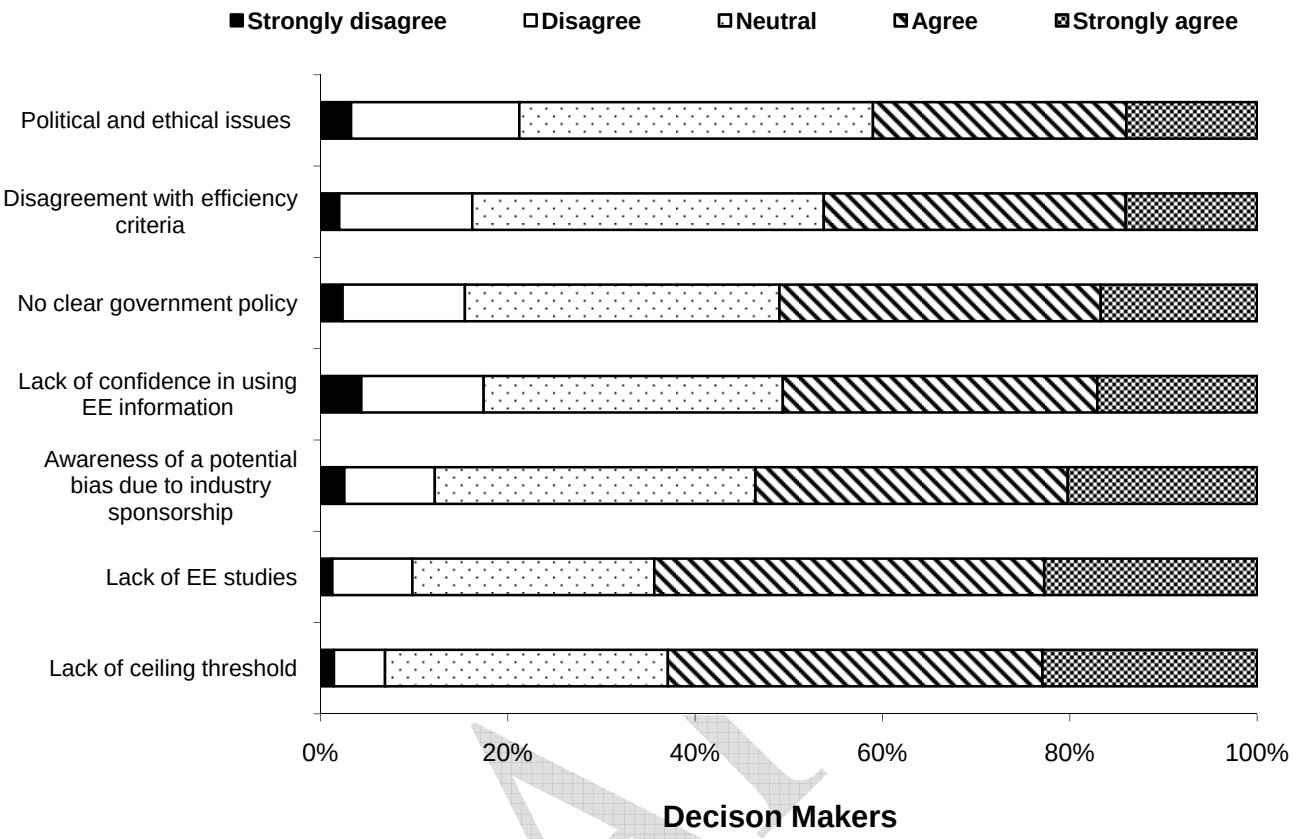


Figure 5. Barriers related to the use of EE perceived by decision makers



ภาคผนวกที่ 2: รายชื่อผู้เข้าร่วมประชุม ISPOR 3rd Asia Pacific Conference และศึกษาดูงาน ณ Health Insurance Review Agency (HIRA)

ตารางรายชื่อผู้ที่ขอทุน TGLIP: กลุ่มผู้นำเสนอแบบปากเปล่า

รายชื่อ	ชื่องานวิจัย	กลุ่มย่อย	ตำแหน่ง
ผศ.ดร.ภญ.อุษา ฉายเกล็ดแก้ว	Survey on the current human capacity and future needs in economic evaluation in Thailand	Health Policy	อาจารย์ประจำภาควิชาเภสัชกรรม ม.มหิดล, นักวิจัย HITAP
นางสาววันทนีย์ กุลเพ็ง	Factors Affecting willingness-to-pay for treatment of blindness in Thai population	Research on Methods	นักวิจัย HITAP
นางสาวชนิดา เลิศพิทักษ์พงษ์	Cost of productivity loss due to premature mortality attributable to alcohol consumption in Thailand	Cost studies	นักวิจัย HITAP
ภก.อดุลย์ โมฮารา	Budget impact analysis of compulsory licensing policy implementation on four cancer drugs in Thailand	Research from Thailand	เภสัชกร 5 สำนักงานคณะกรรมการอาหารและยา, นักวิจัย HITAP
ภญ.ยุพิน ตามธีรนนท์	A systematic review and meta-analysis of the efficacy of statins on reducing acute coronary syndrome and stroke events	Cardiovascular Disease	เภสัชกร 4 โรงพยาบาลสมเด็จพระบรมราชเทวี ณ ศรีราชา สภากาชาดไทย, นักวิจัย HITAP
นางสาวจอมขวัญ โยธาสมุทร	Economic costs of alcohol abuse in Thailand: cost of law enforcement and criminal justice	Research from Thailand	นักวิจัย HITAP

ตารางรายชื่อผู้ที่ขอทุน TGLIP: กลุ่มศึกษาดูงานที่ HIRA

รายชื่อ	หน้าที่	ตำแหน่ง
นพ. สมศักดิ์ ชุณหรัศมิ์	ประธานการประชุมความร่วมมือระหว่างหน่วยงาน	เลขาธิการมูลนิธิสาธารณสุขแห่งชาติ, คณะกรรมการที่ปรึกษา HITAP
ภญ.ปฤฐพร กิ่งแก้ว	แนะนำโครงการประเมินเทคโนโลยีและนโยบายด้านสุขภาพและนำเสนอผลงานของ HITAP	นักวิจัย HITAP

ภาคผนวกที่ 3: Agenda ศึกษาดูงานที่ HIRA

Visit to Health Insurance Review & Assessment Service (HIRA)

10th September 2008

Time	Activities
10:30 - 10:40	Opening remark by both parties (including objectives of the study visit)
10:40-11:00	General introduction of HITAP by HITAP staff
11:00-11:40	- Introduction to HIRA ● Historical background/objectives/mission ● Organizational structure, staffing, performance evaluation ● Domestic and international collaborations
11:40-12:00	Coffee Break
12:00-12:40	HIRA Tour: Review Dept. & IT Center
12:40-14:00	Lunch
14:00-15:30 Drugs	- Presentation on Thailand's drug evaluation system - Drug Evaluation by HIRA ● Legal binding ● Topic selection, assessment and consultation process ● Assessment approval and appeal procedure ● Stakeholder participation and management of conflict of interest
15:30-15:50	Coffee break
15:50-17:00 Procedure, medical materials & device	- Health technology assessment by HIRA ● Application process and assessment system ● Evidence accumulation and its utilization ● Statistics on HTA outputs ● Research designs and methodologies employed by HIRA
17:00-17:30	Wrap-up Discussion

ภาคผนวกที่ 4: บทคัดย่อ Assessing enforcement of policy on limiting alcohol accessibility and alcohol purchasing

Abstract

This study was aimed to evaluate the enforcement of laws on limiting alcohol accessibility (place, time, and age limited) in Thailand. A cross-sectional household survey was carried out throughout the country. Two thousand three hundred and sixty eight persons, whose aged 15 – 60 years, who were on paid employed, and ever consumed alcohol beverage during the past 12 months, were interviewed about time and place they purchased alcohol. It was found that about 71.1per cent and 8.0 per cent of the samples indicated that the latest places they purchased alcohol were grocery store, and convenient store, respectively. However, about 0.4 per cent indicated that the latest place they purchased alcohol was convenient store located in the gas station, which was the place that alcohol selling was prohibited. On time of purchasing, it was found that most of the samples (34.2%) purchased alcohol during 6.00-6.59 pm. However, about 10.4 per cent of the samples indicated that they purchased alcohol during the prohibited times (02.01 – 04.59 pm. and 00.01-10.59 am.) It was found that about 0.8 per cent of those who purchased alcohol were between 15-17 years old, which was lower than 18 years old allowed by law. Base on these findings, government and related organizations should put more effort to ensure the stringent enforcement on the related laws and may also extend to prohibit purchasing at place and time of high demand to be more appropriate in order to effectively control and limit the alcohol accessibility.

Keywords: alcohol, law enforcement, accessibility, purchasing

ภาคผนวกที่ 5: วาระการศึกษาดูงานที่ NICE และรายชื่อคณะเดินทาง

National Institute for Health and Clinical Excellence: Visit from Thai Ministry of Public Health

14 January 2009

09.30	Welcome	Prof Sir Michael Rawlins Chair, NICE
09.35	Overview of the work of HITAP	
09.45	Overview of NICE Overview of NICE's Technology Appraisal programme	Prof Sir Michael Rawlins Chair, NICE
11.00	Coffee	
11.15	How NICE selects topics	Mark Salmon Associate Director - Programme Planning, NICE
11.45	Managing conflicts of interest	Julian Lewis Compliance Manager, NICE
12.15	Involving patients and the public in NICE guidance	Marcia Kelson Associate Director - Patient and Public Involvement, NICE
12.45	Next steps in collaboration	Andrew Dillon Chief Executive, NICE
13.15	Meeting Ends	

รายชื่อคณะเดินทาง

No.	Name	Position
1	Dr. Viroj Tangcharoensathien	Director*
2	Dr. Sripen Tantivess	Senior researcher, Head of International relations division*,**
3	Dr. Yot Teerawattananon	Program leader, Senior researcher**
4	Asst. Prof. Yuwadee Leelukkanaveera	Researcher**
5	Ms. Jomkwan Yothasamut	Researcher, International relations officer**

* International Health Policy Program (IHPP)

**Health Intervention and Technology Assessment Program (HITAP)